Note remarks

Test sheet : DAF Edition : 01.03.93 Replaces : 03.92 Test oil : ISO-4113

Combination no. : 0 402 646 972

Injection pump

Pump designation : PE6P12OA32ORS7218 EP type number : 0 412 626 839

Governor

Governor design. : RQV275...1000PA939-2

Governer no. : 0 421 813 986

Customer-spec. information Customer : DAF

Engine : WS 268 L

1st version kW : 268.0 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflrw valve

: 1 417 413 025

Inlat press., bar: 1.50

Overflow |

quantity min. 1/h: 95...115

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.30...5.40

: 5.30...5.40 : (5.25...5.45)

Rack travel in mm : 14.00...15.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10 & maximum rack tra: 14.5...15.5 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 14.80...14.90

Del.quantity cm3/: 23.0...23.2

100 s: (22.7...23.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0
Rack travel in mm : 6.1...6.3
Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045

travel mm : 7.70...8.20

2nd speed rpm : 275

travel mm : 1.10...1.60

3rd speed rpm : 380

travel mm : 2.40...2.90

4th speed rpm : 675

travel mm : 4.20...4.70

5th speed rpm : 1310

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1125 Speed

Rack travel in mm: 13.60...16.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850 Aneroid pressure h: 1000

Del.quantity : 250.0...235.0)

cn3 : 5.00 1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 116...124

Testing:

1st rack travel in: 13.80

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

rpm : 1150...1180 Speed

4th rack travel in: 1250

rpm : 0.00...1.40 Speed

LOW IDLE 1

Control Lever

position degrees: 78...86

Testing:

Speed : 175 rpm Minimum rack trave: 7.50 rpm : 275

Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

rpm : 300...350 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 600 rom Pressure hPa : 1000

: 14.80...14.90 Rack travel mm

Measurement

Speed 1/min: 600

1st pressure hPa : -

Rack travel in m: 12.20...12.40

2nd pressure hPa : 490

Rack travel in m: 14.20...14.30

3rd pressure hPa : 280

Rack travel in m: 12.80...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm : 600 Speed

Del.quantity cm3/: 158.0...160.0

1000 s: (155.0...163.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.80

rpm : 1040...1050 Speed

LOW IDLE

Speed rpm : 275

Rack travel in mm : 4.90...5.10

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

Test sheet

: DAF

Edition

; 26.02.93

Replaces

: 03.92

Test oil

: TSO-4113

Combination no. : 0 402 646 973

Injection pump

Pump designation : PE6P120A320RS7218Z

EP type number

: 0 412 626 847

Governor

Governor design: : RQ275/1000PA936-2

Governer no.

: 0 421 801 633

Customer-spec. information Customer

: DAF

Engine

: WS 242 L

1st version kW

: 268.0

Rated speed

: 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly

: 1 688 901 105

Openina

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,8

Test lines

: 1 680 750 089

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.30...5.40

: (5.25...5.45)

Rack travel in mm : 14.00...15.00

Firing order : 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10

& maximum rack tra: 13.5...14.5

Difference ° CS : 2.20...3.75

BASIC SETTING 1st speed

rpm: 850

Rack travel in mm: 13.80...13.90

Del.quantity cm3/: 20.5...20.7

100 s: (20.2...21.0)

Spread

Spread

Speed

2nd speed

cm3 : 0.5

100 s: (0.9)

rpm : 275.0

Rack travel in mm: 6.0...6.2

Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 550

Rack travel in mm: 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 850

Aneroid pressure h: 1000

Del.quantity : 203.0...210.0)

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550 Rack travel in mm: 16.0

Testing:

1st rack travel in: 12.80

rpm : 1035...1050 Speed

2nd rack travel in: 4.00

Speed rpm : 1120...1150 4th rack travel in: 1250 Speed

Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring

rpm : 275

Rack travel in mm: 5.0

Testing:

Speed rpm : 175 Minimum rack trave: 6.50

Speed rpm : 275

Rack travel in mm : 4.90...5.10

Rack travel in mm : 2.00

Speed : 330...370 rom

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 14.80...14.90 2nd speed rpm : 1000

Rack travel in m: 14.70...14.90

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600 Pressure hPa : 1000

Rack travel mm : 13.80...13.90

Measurement

Speed $1/\min : 600$

1st pressure hPa : -

Rack travel in m: 11.70...11.90

2nd pressure hPa : 420

Rack travel in m: 13.30...13.40

3rd pressure hPa : 260

Rack travel in m: 12.20...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

A04

Aneroid pressure h: -

rpm : 600 Speed

Del.quantity cm3/: 147.0...149.0 1000 s: (144.0...152.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.80

Speed rpm : 1035...1050

LOW IDLE

Speed rpm : 275

Rack travel in mm : 4.90...5.10

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS BEGINNING OF DELIVERY Test pressure, bar: 25...27 Note remarks Prestroke mm : 5.30...5.40 : (5.25...5.45)
Rack travel in mm : 14.00...15.00
Firing order : 1-5-3-6-2-4 Test sheet : DAF : 01.03.93 Edition Replaces : 03.92 Test oil : TSO-4113 Combination no. : 0 402 646 974 Phasing : 0-60-120-180-240-300 Injection pump Pump designation: PE6P12OA32ORS7218 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ EP type number : 0 412 626 839 Governor Time to cyl. no. : 1 Governor design. : RQ275/1000PA936-2 Governer no. : 0 421 801 633 BEGINNING OF DELIVERY DIFFERENCE Customer-spec. information betw. rack trav. m: 4.90...5.10 & maximum rack tra: 14.5...15.5 Difference ° CS : 2.25...3.75 Customer : DAF Engine : WS 268 L BASIC SETTING 1st version kW : 268.0 : 2000 Rated speed 1st speed rpm: 850 TEST BENCH REQUIREMENTS Rack travel in mm: 14.80...14.90 Test oil Del.quantity cm3/: 23.0...23.2 inlet temp. °C : 38...42 100 s: (22.7...23.5) Overflow valve : 1 417 413 025 cm3 : 0.5Spread Inlet press., bar: 1.50 100 s: (0.9) Overflow rpm : 275.02nd speed quantity min. 1/h: 95...115 Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 1.4...2.0 Test nozzle holder 100 s: (1.1...2.3) assembly : 1 688 901 105 Spread cm3 : 0.8 100 s: (1.2) Openina pressure, bar : 207...210 GUIDE SLEEVE POSITION Control-lever position Orifice plate Degree: -1 rpm : 550 diameter mm : 0,8 Speed Rack travel in mm : 15.60...16.40 Test lines : 1 680 750 089 FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter 1st version x Wall thickness Speed rpm : 850 Aneroid pressure h: 1000 Del.quantity : 230.0...232.0 1000 : (227.0...235.0) x Length mm : 8.00x2.50x600 (A) Injection pump setting values Insp. values in parentheses cm3 : 5.00Spread

1000 : (9.00)

RATED SPEED

Set equal delivery quant.

per values

1st version

Setting point:

Speed rom : 550 Rack travel in mm: 16.0

Testing:

1st rack travel in: 13.80

Speed rpm : 1035...1050 2nd rack travel in: 4.00

rpm : 1140...1170 Speed

4th rack travel in: 1250

Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring

Speed : 275 rom Rack travel in mm: 5.0

Testing:

Speed rpm : 175

Minimum rack trave: 6.50 rpm : 275 Speed

Rack travel in mm : 4.90...5.10

Rack travel in mm: 2.00

Speed rpm : 330...370

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 15.30...15.40

2nd speed rpm : 1000

Rack travel in m: 15.20...15.40

Aneroid/Altitude Compensator Test

1st version

Settina

Speed : 600 rpm Pressure hPa : 1000

: 14.80...14.90 Rack travel mm

Measurement

1/min: 600 Speed

1st pressure hPa :-

Rack travel in m: 12.20...12.40

2nd pressure hPa : 490

Rack travel in m: 14.20...14.30 3rd pressure hPa : 280

Rack travel in m: 12.80...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

A06

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/ : 158.0...160.0

1000 s: (155.0...163.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.80

Speed rpm : 1035...1050

LOW IDLE

Speed rpm : 275 Rack travel in mm : 4.90...5.10

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

Test sheet : SCA

Edition : 15.06.93

Replaces

Test oil

: ISO-4113

Combination no. : 0 402 646 995

Injection pump

Pump designation : PE6P12OA72ORS7188

EP type number

: 0 412 626 832

Governor

Governor design. : RQV200...950PA725-10

Governer no. : 0 421 814 002

Customer-spec. information Customer

: SCANIA

Engine

: DSC 11 33

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 2.50

Test nozzle holder

: 1 688 901 104 assembly

Opening .

: 250...253 pressure, bar

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50

: (4.35...4.55)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 23.8...24.0

100 s: (23.5...24.3)

cm2 : 0.8 Spread

100 s: (1,2)

2nd speed rpm : 250.0 Rack travel in mm: 4.6...5.0

Del.quantity cm3/: 1.3...1.9

100 s: (1.0...2.2) cm3 : 0.4 Spread

100 s: (0.8)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 225 : 1.20...1.60 travel mm

2nd speed rpm : 350

: 2.40...3.00 travel mm

rpm : 650 3rd speed

travel mm : 4.50...5.10

4th speed rpm : 1045

travel mm : 8.40...8.60

rpm : 1125 5th speed

: 9.30...9.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1150 Speed

Rack travel in mm : 7.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1500

Del.quantity : 238.0...240.0 1000 : (235.0...243.0)

Spread

: 8.00 cm3

1000 : (12.00)

RATED SPEED

1st version

Control lever

position degrees: 110...118

Testing:

1st rack travel in: 12.40

Speed rpm : 990...1000 2nd rack travel in: 4.00

rpm : 1110...1140 Speed

4th rack travel in: 1250

rpm : 0.00...1.00Speed

LOW IDLE 1

Control Lever

position degrees: 60...68

Testing:

Speed : 125 rpm

Minimum rack trave: 6.20

: 250 Speed rpm

Rack travel in mm : 4.60...4.80

Rack travel in mm: 2.00

Speed rpm : 370...430

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm

hPa : 1500 Pressure

Rack travel mm : 13.40...13.50

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.20...10.60

2nd pressure hPa : 440

Rack travel in m: 12.00...12.10

3rd pressure hPa : 270
Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500

Speed rpm : 950

Del.quantity cm3/: 218.0...226.0 1000 s: (216.0...228.0)

Aneroid pressure h: -

Speed rom : 500 Del.quantity cm3/: 151.0...155.0 1000 s: (149.0...157.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40

rpm : 990...1000 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 145.0...185.0

1000 s: (141.0...189.0)

Rack travel in mm : 10.20...10.60

LOW IDLE

Speed rpm : 250

Rack travel in mm : 4.60...4.80

Remarks:

Delivery—valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders

to 2.9...3.1 mm.

Start-of-delivery setting with ROBO

diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-2-7-3-4-5-Note remarks Test sheet : SCA 14,0 h1 Edition : 21.06.93 Phasing : 0-45-90-135-180-225-: 07.02.89 Replaces 270-315 Test oil : ISO-4113 Tolerance + - ° : 0.50 (0.75) Combination no. : 0 402 648 836 Time to cyl. no. : 1 Injection pump BASIC SETTING Pump designation : PE8P120A920/4LS7125T EP type number : 0 412 628 824 1st speed rpm: 700 Governor Governor design. : RQV200...950PA736-4 Rack travel in mm : 13.80...13.90 Governer no. : D 421 813 646 Del.quantity cm3/: 22.1...22.3 Customer-spec. information Customer : SAAB-SCANIA 100 s: (21.8...22.6) Engine : DSC14 03 L09,L10 cm3 : 0.6Spread TEST BENCH REQUIREMENTS 100 s: (0.9) Test oil 2nd speed rpm : 225.0 Rack travel in mm : 4.9...5.3 Del.quantity cm3/ : 1.6...2.0 inlet temp. °C : 38...42 Overflow valve 100 s: (-) : 1 417 413 025 Spread cm3 : 0.3100 s: (0.6) Inlet press., bar: 1.50 (B) Setting of injection pump Test nozzle holder with governor : 1 688 901 019 assembly GUIDE SLEEVE TRAVEL Openina 1st speed rpm : 225 : 207...210 pressure, bar travel mm : 1.20...1.60 2nd speed rpm : 350 Orifice plate : 2.30...2.90 travel mm 3rd speed diameter mm : 0.8 : 650 rpm : 4.40...5.00 travel mm rpm : 995 4th speed Test Lines : 1 680 750 015 travel mm : 7.70...7.90 rpm : 1125 5th speed Outside diameter : 9.30...9.70 travel mm x Wall thickness : 6.00x1.50x600 x Length mm GUIDE SLEEVE POSITION Control-lever position (A) Injection pump setting values Degree: -1 rpm : 1040 Insp. values in parentheses Speed Set equal delivery quant. Rack travel in mm : 15.20...17.80 per values FULL LOAD DELIV. AT FULL LOAD STOP BEGINNING OF DELIVERY Test pressure, bar: 25...27 1st version Speed rpm : 700Aneroid pressure h: 900 Prestroke mm : 5.00...5.10 : (4.95...5.15) Del.quantity : 221.0...223.0 Rack travel in mm : 9.00...12.00 1000 : (218.0...226.0)

Spread cm3 : 6.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 56...64

Testing:

1st rack travel in: 12.80 rpm : 990...1000 Speed

2nd rack travel in: 4.00

rpm : 1110...1140 Speed

4th rack travel in: 1250

Speed rom : 0.00...1.00

LOW IDLE 1 Control Lever

position degrees: 7...15

Testing:

Speed man : 100 Minimum rack trave: 6.50 : 225 rpm

Rack travel in mm : 4,90...5.10

Rack travel in mm: 2.00 : 360...420 Speed rom

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 rom hPa : 900 Pressure

Rack travel mm : 13.80...13.90

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 10.60...11.00

2nd pressure hPa : 445

Rack travel in m: 12.90...13.00

3rd pressure hPa : 325

Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 Speed rpm : 950

Del.quantity cm3/: 211.0...219.0

1000 s: (209.0...221.0)

Aneroid pressure h: -Speed rom : 500 Del.quantity cm3/: 138.0...142.0 1000 s: (136.0...144.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.80

rpm : 990...1000 Speed

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 225 Rack travel in mm : 4.90...5.10

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO diaphraom.

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Start of delivery - engine: 16° before

TDC

Engine firing sequence: 1-5-4-2-6-3-7-8

BOSCH INJ. PUMP TEST SPECIFICATIONS BEGINNING OF DELIVERY Note remarks Test pressure, bar: 22...24 Test sheet : 4.35...4.45 : (4.30...4.50) : CUM 8,3 r Prestroke mm Edition : 15.06.93 Replaces : 12.92 Rack travel in mm : 9.00...12.00 Test oil : ISO-4113 : 1-5-3-6-2-4 Firing order Combination no. : 0 402 736 807 Injection pump Phasing : 0-60-120-180-240-300 Pump designation : PES6P110A120RS7214 : 0 412 716 805 EP type number Tolerance + - ° : 0.50 (0.75) Governor Governor design. : RQV350...1100PA964 Time to cyl. no. : 1 -1K : D 421 815 253 Governer no. BASIC SETTING Customer-spec. information 1st speed rpm: 1050 Customer : C.D.C. Rack travel in mm: 15.80...15.90 Engine : 6CTA-A Del.quantity cm3/: 20.9...21.1 : 201.0 1st version kW Rated speed : 2200 100 s: (20.6...21.4) TEST BENCH REQUIREMENTS Spread cm3 : 0.5Test oil 100 s: (0.9) inlet temp. °C : 38...42 2nd speed rpm : 350.0 Overflow valve Rack travel in mm : 5.7...5.9 : 1 417 413 047 Del.quantity cm3/: 2.7...3.3 100 s: (2.5...3.5) cm3 : 0.8 Inlet press., bar: 1.50 Spread 100 s: (1.2) Overflow quantity min. 1/h: 115...125 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 101 assembly GUIDE SLEEVE TRAVEL rpm : 350 : 1.80...2.00 1st speed Opening travel mm : 207...210 pressure, bar 2nd speed rpm : 450 travel mm Orifice plate 3rd speed rpm : 600 diameter mm : 0,6 travel mm rpm : 1000 4th speed travel mm Test lines : 1 680 750 008 rpm : 1200 5th speed travel mm

: 3.10...3.50 : 5.10...5.50 : 8.10...8.30 : 9.60...10.00 Outside diameter x Wall thickness FULL LOAD DELIV. AT FULL LOAD STOP : 6.00X2.00X600 x Length mm

1st version (A) Injection pump setting values Speed rpm : 1050 Insp. values in parentheses Aneroid pressure h: 1500 Set equal delivery quant. Del.quantity : 209.0...211.0 per values ____ 1000 : (206.0...214.0)

cm3 : 5.00Spread 1000 : (9.00)RATED SPEED 1st version Control Lever position degrees: 64...72 Testing: 1st rack travel in: 14.50 rpm : 1145...1155 Speed 2nd rack travel in: 4.00 : 1300...1330 Speed rpm 4th rack travel in: 1400 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 11...19 Testing: Speed : 275 nom Minimum rack trave: 7.20 Speed rpm : 350 Rack travel in mm : 5.70...5.90 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version rpm : 1050 1st speed Rack travel in m: 15.80...15.90 rpm : 650 2nd speed Rack travel in m: 13.20...13.60 3rd speed rpm : 1100 Rack travel in m: 15.50...15.70 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1050 rom hPa : 1500 Pressure

: 15.80...15.90 Rack travel mm Measurement 1/min: 1050 Speed 1st pressure hPa : -Rack travel in m: 8.10...8.50 2nd pressure hPa : 335 Rack travel in m: 10.10...10.20 3rd pressure hPa : 845 Rack travel in m: 13.60...14.00

START CUT-OUT Speed 1/min : 290 (300) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 Speed rpm : 650 Del.quantity cm3/: 190.5...196.5 1000 s: (187.5...199.5) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 91.0...95.0 1000 s: (89.0...97.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 14.50 rpm : 1145...1155 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0) Rack travel in mm : 11.00...12.00 LOW IDLE

rpm : 350 Speed Rack travel in mm : 5.70...5.90 Del.quantity cm3/: 27.0...33.0 1000 s: (25.0...35.0) cm3 : 8.00 Spread 1000 s: (12.00)

Remarks:

: C.D.C. # 3921771

Start-of-delivery mark = 5.5° after start of delivery cyl. 1.

Bow dimension: Sliding-sleeve position = 37.0 mm

Note remarks

Test sheet : CUM 8,3 r 1 Edition : 15.06.93

Replaces : 05.92 Test oil : ISO-4113

Combination no. : 0 402 736 814

Injection pump

Pump designation : PES6P110A120RS7214

EP type number : 0 412 716 805

Governor

Governor design. : RQV350...1200PA964

-6K

Governer no. : 0 421 815 258

Customer—spec. information Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 187.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 115...125

Test nozzle holder

assembly : 1 688 901 101

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45

: 4.35...4.45 ; (4.30...4.50)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 18.3...18.5

100 s: (18.0...18.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm: 5.4...5.6 Del.guantity cm3/: 2.7...3.3

100 s: (2.5...3.5)

Spread cm3: 0.8

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.80...2.00

2nd speed rpm : 450

travel mm : 3.10...3.50

3rd speed rpm : 700

travel mm : 5.90...6.30

4th speed rpm : 1200

travel mm : 9.00...9.20

5th speed rpm : 1400

travel mm : 10.70...11.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 1200

Del.quantity : 183.0...185.0

1000 : (180.0...188.0)

cm3 : 5.00 Spread 1000 : (9.00)

RATED SPEED

1st version Control Lever

position degrees: 62...70

Testing:

1st rack travel in: 13.50

rpm : 1245...1255 Speed

2nd rack travel in: 4.00

rpm : 1405...1435 Speed

4th rack travel in: 1500

rom : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 11...19

Testina:

Speed : 275 rpm Minimum rack trave: 7.20 rom : 350

Rack travel in mm : 5.40...5.60

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm :?

Tarque control curve - 1st version

rpm : 1200 1st speed

Rack travel in m: 14.50...14.60

2nd speed rpm : 650

Rack travel in m: 11.40...11.80

Aneroid/Altitude Compensator Test

1st version

Settina

Speed rpm : 1200 Pressure hPa : 1200

: 14.50...14.60 Rack travel mm

Measurement

Speed 1/min: 1200

1st pressure hPa : -

Rack travel in m: 7.50...7.90

2nd pressure hPa : 320

Rack travel in m: 9.60...9.70

3rd pressure hPa : 860

Rack travel in m: 13.30...13.70

START CUT-OUT

Speed 1/min: 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 650 Del.quantity cm3/ : 165.5...171.5 1000 s: (162.5...174.5)

cm3 : 8.00Spread 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 86.5...90.5 1000 s: (84.5...92.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.50

Speed rpm : 1245...1255

STARTING FUEL DELIVERY

Speed : 100 rom

Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0)

Rack travel in mm: 10.70...11.70

LOW IDLE

rpm : 350

Rack travel in mm : 5.40...5.60 Del.quantity cm3/: 27.0...33.0 1000 s: (25.0...35.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: C.D.C. # 3921775

Start-of-delivery mark = 5.5° after

start of delivery cyl. 1.

Bow dimension:

Sliding-sleeve position = 37.0 mm

Note remarks

Test sheet : CUM

: 15.06.93 Edition Replaces : 03.93 Test oil : ISO-4113

Combination no. : 0 402 736 834

Injection pump

Pump designation : PES6P120A120RS7265

EP type number : 0 412 726 882

Governor

Governor design. : RQV350...1100PA964

-12K

: 0 421 815 323 Governer no.

Customer—spec. information Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 186.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 103 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x3.00x600

(A) Injection pump setting values insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05

: (3.90...4.10)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 13.90...14.00

Del.quantity cm3/ : 21.1...21.3

100 s: (20.8...21.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 6.4...6.8

Del.quantity cm3/ : 2.0...2.6 100 s: (1.8...2.8)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 350 : 2.10...2.40 travel mm

rpm : 450 2nd speed

: 3.20...3.60 travel mm

3rd speed rpm : 900

travel mm : 5.60...6.00

4th speed rpm : 1200

travel mm : 8.10...8.30

5th speed : 1400 riom.

: 10.20...10.60 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 1200

: 211.5...213.5 Del.quantity

1000 : (208.5...216.5)

cm3 : 5.00 1000 : (9.00) Spread RATED SPEED 1st version Control lever position degrees: 58...66 Testing: 1st rack travel in: 12.40 Speed rpm : 1245...1275 2nd rack travel in: 4.00 rpm : 1390...1400 Speed 4th rack travel in: 1500 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 13...21 Testing: : 275 Speed rom Minimum rack trave: 8.30 rpm : 350 Rack travel in mm: 6.40...6.80 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version t speed rpm : 1100 Rack travel in m: 13.90...14.00 1st speed rpm : 650 2nd speed Rack travel in m: 12.00...12.40 3rd speed rpm : 1200 Rack travel in m: 13.40...13.60 4th speed rpm : 750
Rack travel in m: 12.40...12.80 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 1100 Pressure hPa : 1200 Rack travel mm : 13.90...14.00

Measurement

1/min: 1100 Speed

1st pressure hPa : -

Rack travel in m: 8.60...9.00 2nd pressure hPa : 310.

Rack travel in m: 10.10...10.20 3rd pressure hPa : .650

Rack travel in m: 12.40...12.80

START CUT-OUT

Speed 1/min: 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 : 650 Speed rpm

Del.quantity cm3/: 166.0...172.0 1000 s: (163.0...175.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: 1200 Speed rpm : 750

Del.quantity cm3/: 175.0...181.0 1000 s: (172.0...184.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 1000 Del.quantity cm3/: 82.5...86.5 1000 s: (80.5...88.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.40

rpm : 1245...1275 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 180.0...220.0

1000 s: (175.0...225.0)

Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.40...6.80 Del.guantity cm3/: 20.0...26.0 1000 s: (18.0...28.0)

cm3 : 8.00

Spread 1000 s: (12.00)

Remarks:

: C.D.C. # 3922471

Start-of-delivery mark = 5.5° after start of delivery cyl. 1.

Bow dimension:

Sliding-sleeve position = 37.0 mm Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70 mm

Note remarks

Test sheet : CUM

Edition : 21.04.93

Replaces

Test oil : ISO-4113

Combination no. : 0 402 736 835

Injection pump

Pump designation : PES6P120A120RS7265

EP type number : 0 412 726 882

Governor

Governor design. : RQV350...900PA964

-13K

: 0 421 815 324 Governer no.

Customer-spec. information Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 205.0 : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

: 1 688 901 103 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X3.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.95...4.05 Prestroke mm

: (3.90...4.10)

Rack travel in mm: 9.00...12.00 Firing order: 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 14.70...14.80

Del.quantity cm3/: 24.3...24.5

100 s: (24.0...24.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.8...2.4

100 s: (1.6...2.6)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.60...1.80

rpm : 450 2nd speed

: 3.00...3.40 travel mm

3rd speed rpm : 600

: 5.20...5.60 travel mm

rpm : 1000 4th speed

travel mm : 8.40...8.60

rpm : 1150 5th speed

: 9.80...10.20 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900 Aneroid pressure h: 1200

Del.quantity : 243.0...245.0

1000 : (240.0...248.0)

cm3 : 5.00 1000 : (9.00) Spread Rack travel in m: 13.20...13.60 START CUT-OUT RATED SPEED $1/\min : 290 (300)$ Speed 1st version Control lever FUEL DELIVERY CHARACTERISTICS position degrees: 60...68 Testing: 1st version 1st rack travel in: 13.40 Aneroid pressure h: 1200 Speed rpm : 1145...1175 : 650 rpm 2nd rack travel in: 4.00 Del.quantity cm3/: 226.0...232.0 1000 s: (223.0...235.0) rpm : 1210...1220 Speed cm3 : 8.00 1000 s: (12.0) 4th rack travel in: 1350 Spread rpm : 0.00...1.00 Speed Aneroid pressure h: 1200 LOW IDLE 1 Speed rpm Del.quantity cm3/: 230.5...236.5 1000 s: (227.5...239.5) Control lever position degrees: 12...20 cm3 : 8.00 Spread Testing: 1000 s: (12.0) Speed : 275 Aneroid pressure h: rom Minimum rack trave: 8.10 rpm : 1000 Speed rpm : 350 Del.quantity cm3/: 90.5...94.5 Rack travel in mm : 6.40...6.60 1000 s: (88.5...96.5) CONSTANT REGULATION rpm : 325...520 Speed **BREAKAWAY** TORQUE CONTROL 1st version Dimension a mm 1mm rack travel less than Torque control curve - 1st version 1st speed rpm : 900 full load rack tr: 13.40 Rack travel in m: 14.70...14.80 rom : 1145...1175 Speed 2nd speed rpm : 650 Rack travel in m: 13.80...14.20 STARTING FUEL DELIVERY 3rd speed rpm : 1000 Rack travel in m: 14.40...14.60 4th speed rpm : 750 Speed : 100 rpm Del.quantity cm3/: 180.0...220.0 Rack travel in m: 14.10...14.50 1000 s: (175.0...225.0) Aneroid/Altitude Rack travel in mm : 12.00...13.00 Compensator Test LOW IDLE 1st version Speed rpm : 350 Rack travel in mm : 6.40...6.60 Setting Del.quantity cm3/: 18.0...24.0 1000 s: (16.0...26.0) Speed : 1000 rom hPa : 1200 Pressure Rack travel mm : 14.70...14.80 Spread cm3 : 8.00 1000 s: (12.00) Measurement 1/min: 1000 Speed Remarks: : C.D.C. # 3922446 1st pressure hPa : -Rack travel in m: 10.20...10.60 2nd pressure hPa : 310 Start-of-delivery mark = 5.5° after start of delivery cyl. 1. Rack travel in m: 11.40...11.50 3rd pressure hPa : 650 Bow dimension:

Note remarks

Test sheet : CUM Edition : 15.06.93

Replaces : 02.93 Test oil : ISO-4113

Combination no. : 0 402 736 836

Injection pump

Pump designation : PES6P120A120RS7265

EP type number : 0 412 726 882

Governor

Governor design. : RQV350...1000PA964

-14K

: 0 421 815 325 Governer no.

Customer-spec, information Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 205.0 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

: 1 688 901 103 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X3.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.95...4.05 Prestroke mm

: (3.90...4.10)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 23.6...23.8

100 s: (23.3...24.1)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 0.9...1.5

100 s: (0.7...1.7)

cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

Spread

rpm : 350 1st speed

travel mm : 1.80...2.00

rpm : 450 2nd speed

: 3.10...3.50 travel mm

3rd speed : 600 rpm

travel mm : 5.10...5.50

4th speed rpm : 1000

travel mm : 8.10...8.30

rpm : 1200 5th speed

: 9.60...10.00 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000Aneroid pressure h: 1200

Del.quantity : 236.0...238.0

1000 : (233.0...241.0)

cm3 : 5.00 3rd pressure hPa : 880 Spread 1000 : (9.00)Rack travel in m: 12.90...13.30 RATED SPEED START CUT-OUT 1st version Speed 1/min: 290 (300) Control lever position degrees: 62...70 FUEL DELIVERY CHARACTERISTICS Testina: 1st rack travel in: 12.90 1st version Speed rpm : 1145...1175 Aneroid pressure h: 1200 2nd rack travel in: 4.00 rpm : 650 Speed Speed rpm : 1295...1305 4th rack travel in: 1400 Del.quantity cm3/: 203.5...209.5 1000 s: (200.5...212.5) rpm : 0.00...1.00 Speed cm3 : 8.00 Spread 1000 s: (12.0) LOW IDLE 1 Aneroid pressure h: 1200 Control lever : 750 Speed rpm Del.quantity cm3/: 209.5...215.0 position degrees: 12...20 Rack travel in mm: 6.1 1000 s: (206.5...218.5) cm3 : 8.00 Spread 1000 s: (12.0) Testing: Speed rpm : 275 Aneroid pressure h: -Minimum rack trave: 8.10 rpm : 1000 Speed Del.quantity cm3/: 88.0...92.0 rpm : 350 Rack travel in mm : 6.00...6.20 1000 s: (86.0...94.0) CONSTANT REGULATION Speed rpm : 325...520 **BREAKAWAY** TORQUE CONTROL. 1st version Dimension a mm :? 1mm rack travel less than Tarque control curve - 1st version 1st speed rpm : 1000 full load rack tr: 12.90 rpm : 1145...1175 Rack travel in m: 14.50...14.60 Speed 2nd speed rpm : 650 Rack travel in m: 13.10...13.50 STARTING FUEL DELIVERY 3rd speed rpm : 1100 Rack travel in m: 13.90...14.10 4th speed rpm : 750 rpm : 100 Speed Rack travel in m: 13.40...13.80 Del.quantity cm3/: 180.0...220.0 1000 s: (175.0...225.0) Aneroid/Altitude Rack travel in mm : 12.00...13.00 Compensator Test LOW IDLE 1st version Speed rpm : 350 Settina Rack travel in mm : 6.00...6.20 Speed : 1000 Del.quantity cm3/ : 9.5...15.5 rpm Pressure hPa : 1200 1000 s: (7.5...17.5) Rack travel mm : 14.50...14.60 cm3 : 8.00 Spread 1000 s: (12.00) Measurement 1/min: 1000 Speed Remarks: : C.D.C. # 3922427 1st pressure hPa : -Rack travel in m: 8.80...9.20 Start-of-delivery mark = 5.5° after 2nd pressure hPa : 400 start of delivery cyl. 1.

Rack travel in m: 10.30...10.40

Bow dimension: Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS BEGINNING OF DELIVERY Test pressure, bar: 22...24 Note remarks : 3.55...3.65 Prestroke mm : (3.50...3.70)
Rack travel in mm : 9.00...12.00
Firing order : 1-5-3-6-2-4 Test sheet : CUM Edition : 15.06.93 Replaces Test oil : ISO-4113 Combination no. : 0 402 736 842 : 0-60-120-180-240-300 Phasina Injection pump Pump designation : PES6P120A120RS7281 Tolerance + - ° : 0.50 (0.75) EP type number : 0 412 726 890 Governor Time to cyl. no. : 1 Governor design. : RQV400...1250PA1060K Governer no. : 0 421 815 344 BASIC SETTING Customer-spec, information rpm: 1250 1st speed Customer : C.D.C. Rack travel in mm : 13.40...13.50 Engine : 6BTA-A Del.guartity cm3/: 15.7...15.9 1st version kW : 119.0 Rated speed : 2500 100 s: (15.4...16.2) TEST BENCH REQUIREMENTS Spread cm3 : 0.8Test oil 100 s: (1.2) inlet temp. °C : 38...42 rpm : 400.0 2nd speed Rack travel in mm: 6.0...6.4 Overflow valve Del.quantity cm3/: 1.5...2.1 100 s: (1.3...2.3) : 1 417 413 047 Inlet press., bar: 1.50 Spread cm3 : 0.4100 s: (0.8) Overflow quantity min. 1/h: 105...125 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 103 assembly GUIDE SLEEVE TRAVEL rpm : 400 1st speed **Openina** travel mm : 1.40...1.60 pressure, bar : 207...210 rom : 550 2nd speed : 2.50...2.90 travel mm Orifice plate 3rd speed rpm : 800 diameter mm : 0.7 travel mm : 4.00...4.40 : 1250 4th speed rpm : 6.90...7.10 travel mm Test Lines : 1 680 750 015 5th speed : 1500 rpm : 9.10...9.50 travel mm Outside diameter x Wall thickness FULL LOAD DELIV. AT FULL LOAD STOP x Length mm : 6.00x3.00x600

1st version

Del.quantity

rpm : 1250

: 157.0...159.0

1000 : (154.0...162.0)

Aneroid pressure h: 1200

Speed

A24

(A) Injection pump setting values

Set equal delivery quant.

per values

Insp. values in parentheses

cm3 : 8.00Spread 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 58...66 Testina: 1st rack travel in: 12.40 rpm : 1320...1330 Speed 2nd rack travel in: 4.00 Speed rpm : 1465...1495 4th rack travel in: 1550 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 12...20 Testina: Speed : 275 rpm Minimum rack trave: 7.80 rpm : 400 Rack travel in mm : 6.00...6.40 CONSTANT REGULATION rom : 325...520 Speed TORQUE CONTROL. Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 13.40...13.50 rpm : 800 2nd speed Rack travel in m: 11.60...12.00 3rd speed rpm : 500 Rack travel in m: 11.40...11.80 4th speed rpm : 900 Rack travel in m: 12.00...12.40 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1250 rom Pressure hPa : 1200 Rack travel mm : 13.40...13.50 Measurement Speed 1/min: 1250 1st pressure hPa : -Rack travel in m: 10.30...10.70

START CUT-OUT Speed 1/min: 250 (260) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 800 Del.quantity cm3/ : 124.5...130.5 1000 s: (121.5...133.5) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1200 Speed rpm : 900 Del.quantity cm3/: 137.5...143.5 1000 s: (134.5...146.5) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 1250 Speed Del.quantity cm3/: 108.5...112.5 1000 s: (106.5...114.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.40 rpm : 1320...1330 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0) Rack travel in mm : 13.00...14.00 LOW IDLE rpm : 400Speed Rack travel in mm : 6.00...6.40 Del.quantity cm3/: 15.0...21.0 1000 s: (13.0...23.0) Spread cm3 : 4.001000 s: (8.00) Remarks: : C.D.C. # 3925085 Start-of-delivery blocking 5,75° after start of delivery of cylinder no. 1.

Rack travel in m: 12.50...12.90

2nd pressure hPa : 265

3rd pressure hPa : 440

Rack travel in m: 11.10...11.20

Note remarks

Test sheet : CUM

Edition : 15.06.93

Replaces

Test oil : ISO-4113

Combination no. : 0 402 736 845

Injection pump

Pump designation : PES6P12DA12DRS7286

EP type number : 0 412 726 894

Governor

Governor design. : RQV350...1100PA964

-20 K

Governer no. : 0 421 815 352

Customer spec. information Customer : C.D.C.

: 6CTA-A Engine

1st version kW : 224.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 95...115

Test nozzle holder

: 1 688 901 103 assembly

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X3.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05

: (3.90...4.10)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 15.00...15.10

Del.quantity cm3/: 24.9...25.1

100 s: (24.6...25.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm: 6.4...6.8

Del.quantity cm3/: 1.8...2.4

100 s: (1.6...2.6) Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rom : 350travel mm : 2.10...2.40

rpm : 4502nd speed

travel mm : 3.20...3.60

3rd speed : 900 תמי

travel mm : 5.60...6.00

4th speed : 1200 rpm

: 8.10...8.30 travel mm

5th speed : 1400 rpm

travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 1200

Del.quantity : 249.0...251.0

1000 : (246.0...254.0)

cm3 : 5.00 Spread Rack travel in m: 13.40...13.80 1000 : (9.00) START CUT-OUT RATED SPEED 1/min: 290 (300) Speed 1st version Control lever FUEL DELIVERY CHARACTERISTICS position degrees: 61...69 Testina: 1st version 1st rack travel in: 13.30 Aneroid pressure h: 1200 Speed rpm : 650 Del.quantity cm3/ : 209.0...215.0 1000 s: (206.0...218.0) rpm : 1250...1280 Speed 2nd rack travel in: 4.00 Speed rpm : 1395,..1405 4th rack travel in: 1475 cm3 : 8.00 Spread rpm : 0.00...1.00 1000 s: (12.0) Speed Aneroid pressure h: 1200 LOW IDLE 1 : 750 Speed rpm Del.quantity cm3/: 210.5...216.5 1000 s: (207.5...219.5) Spread cm3 : 8.00 Control lever position degrees: 14...22 Testina: 1000 s: (12.0) Speed rpm : 275 Minimum rack trave: 7.70 Aneroid pressure h: rpm : 1000 Speed : 350 Del.quantity cm3/: 90.5...94.5 Speed nom Rack travel in mm : 6.40...6.80 1000 s: (88.5...96.5) CONSTANT REGULATION rom : 325...520 Speed **BREAKAWAY** TORQUE CONTROL 1st version Dimension a mm 1mm rack travel less than Torque control curve - 1st version 1st speed rpm : 1100 full load rack tr: 13.30 Rack travel in m: 15.00...15.10 rpm : 1250...1280 Speed : 650 2nd speed וווכרו Rack travel in m: 13.30...13.70 STARTING FUEL DELIVERY : 1200 3rd speed rpm Rack travel in m: 14.30...14.50 : 750 4th speed rpm Speed rpm : 100 Del.quantity cm3/: 180.0...220.0 1000 s: (175.0...225.0) Rack travel in m: 13.60...14.00 Aneroid/Altitude Rack travel in mm : 12.00...13.00 Compensator Test LOW IDLE 1st version Speed rpm : 350 Settina Rack travel in mm : 6.40...6.80 Del.quantity cm3/: 18.0...24.0 1000 s: (16.0...26.0) Speed : 1100 rpm hPa : 1200 Pressure : 15.00...15.10 Rack travel mm cm3 : 8.00 Spread 1000 s: (12.00) Measurement 1/min: 1100 Speed Remarks: : C.D.C. # 3922425 1st pressure hPa : -Rack travel in m: 9.10...9.50 Start-of-delivery blocking 6,5° after 2nd pressure hPa : 345 Rack travel in m: 10.80...10.90 start of delivery of cylinder no. 1.

Bow dimension:

3rd pressure hPa : 725

Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : SAK Phasina : 0-60-120-180-240-300 Edition : 22.06.93 Replaces Tolerance + - ° : 0.50 (0.75) Test oil : TSO-4113 Time to cyl. no. : 1 Combination no. : 0 402 746 939 BASIC SETTING Injection pump Pump designation : PES6P130A320RS7271 1st speed rpm: 1500 EP type number : 0 412 736 804 Governor Rack travel in mm : 10.40...10.50 Governor design. : RQV275...1500PA1049 : D 421 814 032 Governer no. Del.quantity cm3/: 31.9...32.1 Customer-spec. information 100 s: (31.6...32.4) Customer : SEATEK Spread cm3 : 0.5Engine : 64/\/9 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 450 Test oil Rack travel in mm: 2.8...3.2 Del.quantity cm3/: 2.0...2.6 inlet temp. °C : 38...42 100 s: (1.7...2.9) Overflow valve cm3 : 0.8 Spread : 1 417 413 025 100 s: (1.2) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 105 assembly GUIDE SLEEVE TRAVEL 1st speed rpm : 1550 Openina travel mm : 8.10...8.30 pressure, bar : 207...210 rpm : 450 2nd speed : 0.90...1.10 travel mm Orifice plate rpm : 700 3rd speed diameter mm : 0,8 travel mm : 2.70...3.30 4th speed rpm : 1050 : 4.50...5.10 travel mm Test lines : 1 680 750 075 rpm : 1750 5th speed travel mm : 11.00...12.00 Outside diameter x Wall thickness GUIDE SLEEVE POSITION x Length mm : 8.00x2.50x1000 Control-lever position Degree: -1 (A) Injection pump setting values rpm : 1575 Speed Insp. values in parentheses Rack travel in mm : 8.10...10.70 Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1500

Del.quantity : 319.0...324.0)

Aneroid pressure h: 1000

Speed

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50 : (4.35...4.55) Rack travel in mm : 9.00...12.00

B01

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version Control Lever

position degrees: 102...110

Testing:

1st rack travel in: 9.40

Speed rpm : 1540...1550

2nd rack travel in: 4.00

Speed rpm : 1630...1660

4th rack travel in: 1750

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control Lever

position degrees: 64...72

Testing:

Speed rpm : 100 Minimum rack trave: 6.20 rpm : 450

Rack travel in mm : 2.90...3.10 Rack travel in mm : 2.00

Speed rpm : 460...500

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 rom hPa : 1000 Pressure

Rack travel mm : 10.40...10.50

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 6.30...6.50

2nd pressure hPa : 300

Rack travel in m: 9.40...9.50

3rd pressure hPa : 185

Rack travel in m: 7.20...7.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 138.0...142.0

1000 s: (135.0...145.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 1540...1550

:

Remarks:

APPLICATION

Ship

BOSCH INJ. PUMP TEST SPECIFICATIONS BEGINNING OF DELIVERY Test pressure, bar: 22...24 Note remarks Prestroke mm : 2.85...2.95 : IHC : 15.06.93 Test sheet : (2.80...3.00) Edition Rack travel in mm : 14.00...17.00 Replaces : 01.93 : 1-5-3-6-2-4 Firing order Test oil : ISO-4113 Combination no. : 0 402 746 940 Phasing : 0-60-120-180-240-300 Injection pump Pump designation : PES6P120A320LS7284 Tolerance + - ° : 0.50 (0.75) EP type number : 0 412 726 891 Governor Time to cyl. no. : 1 Governor design. : RQV350...1000PA1054K Governer no. : 0 421 815 337 BASIC SETTING Customer-spec. information rpm: 1000 1st speed Customer : NAVISTAR Rack travel in mm: 14.30...14.40 Engine : DTA-531 Del.quantity cm3/: 21.8...22.0 1st version kW : 224.0 Rated speed : 2000 100 s: (21.5...22.3) TEST BENCH REQUIREMENTS Spread cm3 : 0.8Test oil 100 s: (1.2) inlet temp. °C : 38...42 rpm : 350.0 2nd speed Rack travel in mm: 5.7...5.9 Overflow valve : 2 417 413 076 Del.quantity cm3/: 1.5...2.1 100 s: (1.3...2.3) Inlet press., bar: 2.80 cm3 : 0.5 Spread 100 s: (0.9) Overflow quantity min. 1/h: 170...190 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 101 assembly GUIDE SLEEVE TRAVEL 1st speed rom : 350 Opening : 1.40...1.60 travel mm rpm : 500 pressure, bar : 207...210 2nd speed travel mm : 3.70...4.10 Orifice plate rpm : 800 3rd speed diameter mm : 0,6 travel mm : 6.80...7.20 rpm : 1000 4th speed travel mm : 9.10...9.30 Test Lines : 1 680 750 008 rpm : 1150 5th speed : 11.20...11.60 travel mm

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____
1000 : (215.0...223.0)

Spread cm3 : 8.00 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 61...69 Testina: 1st rack travel in: 13.30 rpm : 1045...1075 Speed 2nd rack travel in: 4.00 rpm : 1170...1180 Speed 4th rack travel in: 1250 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 17...25 Testing: Speed rpm Minimum rack trave: 7.20 man Rack travel in mm : 5.70...5.90 CONSTANT REGULATION Speed rpm : 325...520 TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 14.30...14.40 : 650 rpm 2nd speed Rack travel in m: 14.20...14.40 : 500 3rd speed rpm Rack travel in m: 13.30...13.70 Aneroid/Altitude Compensator Test 1st version Settina Speed : 1000 rpm hPa : 1500 Pressure Rack travel mm : 14.30...14.40 Measurement Speed 1/min: 1000 1st pressure hPa : -Rack travel in m: 9.90...10.30 2nd pressure hPa : 380

Rack travel in m: 11.30...11.40

Rack travel in m: 13.10...13.50

3rd pressure hPa : 900

START CUT-OUT 1/min : 265 (275) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 : 650 Speed rpm Del.quantity cm3/: 232.5...238.5 1000 s: (229.5...241.5) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 800 Speed Del.quantity cm3/: 99.0...103.0 1000 s: (97.0...105.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.30 Speed rpm : 1045...1075 STARTING FUEL DELIVERY : 100 Speed man Del.quantity cm3/: 125.0...165.0 1000 s: (120.0...180.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 5.70...5.90 Del.quantity cm3/: 15.5...21.5 1000 s: (13.5...23.5) Spread cm3 : 5.00 1000 s: (9.00) Remarks: : NAVISTAR #1819915091 Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery Bow dimension: Sliding-sleeve position = 37.0 mm Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70

BOSCH INJ. PUMP TEST SPECIFICATIONS BEGINNING OF DELIVERY Note remarks Test pressure, bar: 22...24 Test sheet : 2.85...2.95 : NAV Prestroke mm Edition : 15.06.93 : (2.80...3.00) Replaces Rack travel in mm : 10.00...13.00 Test oil : ISO-4113 Firing order : 1-5-3-6-2-4 Combination no. : 0 402 746 941 Injection pump Phasing : 0-60-120-180-240-300 Pump designation: PES6P120A320LS7284 EP type number : 0 412 726 891 Tolerance + - ° : 0.50 (0.75) Governor Governor design. : RQV350...1000PA1054 Time to cyl. no. : 1 -1K : 0 421 815 338 Governer no. BASIC SETTING Customer-spec. information rpm : 10001st speed Customer : NAVISTAR Rack travel in mm : 14.30...14.40 Engine : DTA-531 Del.quantity cm3/: 21.5...21.7 : 205.0 1st version kW : 2000 Rated speed 100 s: (21.2...22.0) TEST BENCH REQUIREMENTS cm3 : 0.8Spread 100 s: (1.2) Test oil inlet temp. °C : 38...42 2nd speed rpm : 350.0Rack travel in mm: 5.7...5.9 Overflow valve : 2 417 413 076 Del.quantity cm3/: 1.5...2.1 100 s: (1.3...2.3) cm3 : 0.5 Inlet press., bar: 2.80 Spread 100 s: (0.9) Overflow quantity min. 1/h: 190...210 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 101 assembly GUIDE SLEEVE TRAVEL 1st speed rpm : 350 : 1.40...1.60 Openina travel mm pressure, bar : 207...210 rpm : 500 2nd speed : 3.70...4.10 travel mm rpm : 800 Orifice plate 3rd speed diameter mm : 0,6 travel mm : 6.80...7.20 4th speed rpm : 1000 : 9.10...9.30 travel mm Test Lines : 1 680 750 008 5th speed : 1150 rpm : 11.20...11.60 travel mm Outside diameter x Wall thickness FULL LOAD DELIV. AT FULL LOAD STOP : 6.00x2.00x600 x Length mm 1st version (A) Injection pump setting values Speed rpm : 1000Insp. values in parentheses Aneroid pressure h: 1500 Del.quantity Set equal delivery quant. : 215.0...217.0

1000 : (212.0...220.0)

per values

Spread cm3 : 8.00 START CUT-OUT 1000 : (12.00) Speed 1/min : 265 (275) RATED SPEED FUEL DELIVERY CHARACTERISTICS 1st version Control lever position degrees: 63...71 1st version Aneroid pressure h: 1500 Testina: Speed : 650 rpm 1st rack travel in: 13.30 Del.quantity sm3/: 223.0...220.0 rpm : 1040...1070 Speed 1000 s: (220.0...232.0) 2nd rack travel in: 4.00 Spread cm3 : 8.00rpm : 1170...1180 Speed 1000 s: (12.6) 4th rack travel in: 1300 Aneroid pressure h: -Speed rpm : 800 Del.quantity cm3/ : 99.0...103.0 1000 s: (97.0...105.0) rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 17...25 BREAKAWAY Testing: Speed man 1st version Minimum rack trave: 7.50 1mm rack travel less than rpm : 350 Rack travel in mm : 5.70...5.90 full load rack tr: 13.30 Speed rpm : 1040...1070 CONSTANT REGULATION rpm : 325...520 Speed STARTING FUEL DELIVERY TORQUE CONTROL Dimension a mm : ? Speed : 100 rpm Del.quantity cm3/: 125.0...165.0 1000 s: (120.0...180.0) Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 14.30...14.40 Rack travel in mm : 19.00...21.00 : 650 2nd speed man Rack travel in m: 14.00...14.20 LOW IDLE 3rd speed rpm : 500 Rack travel in m: 12.80...13.20 Speed rpm : 350 Rack travel in mm : 5.70...5.90 Del.quantity cm3/: 15.5...21.5 Aneroid/Altitude Compensator Test 1000 s: (13.5...23.5) cm3 : 5.00 1000 s: (9.00) Spread 1st version Setting Remarks: : 1000 Speed rpm : NAVISTAR #1819916091 Pressure hPa : 1500 Rack travel mm : 14.30...14.40 Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 Measurement start of delivery Speed $1/\min : 1000$ Bow dimension: 1st pressure hPa : -Sliding-sleeve position = 37.0 mm Rack travel in m: 9.90...10.30 2nd pressure hPa : 370 Rack travel in m: 11.10...11.20 Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70 3rd pressure hPa : 880 Rack travel in m: 12.90...13.30

BOSCH INJ. PUMP TEST SPECIFICATIONS BEGINNING OF DELIVERY Test pressure, bar: 22...24 Note remarks : 2.85...2.95 Prestroke mm Test sheet : NAV : (2.80...3.00) Edition : 21.04.93 Rack travel in mm : 10.00...13.00 Replaces Firing order : 1-5-3-6-2-4 Test oil : ISO-4113 Combination no. : 0 402 746 946 Phasing : 0-60-120-180-240-300 Injection pump Pump designation : PES6P120A320LS7284 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ EP type number : 0 412 726 891 Governor Time to cyl. no. : 1 Governor design. : RQV350...1100PA1066K Governer no. : 0 421 815 349 BASIC SETTING Customer-spec. information 1st speed rpm: 1100 Customer : NAVISTAR Rack travel in mm : 13.80...13.90 : DTA-531 Engine Del.quantity cm3/: 19.9...20.1 1st version kW : 222.0 : 2200 Rated speed 100 s: (19.6...20.4) TEST BENCH REQUIREMENTS Spread cm3 : 0.8Test oil 100 s: (1.2) inlet temp. °C : 38...42 rpm : 350.0 2nd speed Overflow valve Rack travel in mm: 5.7...5.9 : 2 417 413 076 Del.quantity cm3/: 1.5...2.1 100 s: (1.3...2.3) Inlet press., bar: 2.80 cm3 : 0.5Spread 100 s: (0.9) Overflow quantity min. 1/h: 170...190 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 101 assembly GUIDE SLEEVE TRAVEL 1st speed rpm : 350 Opening | : 1.90...2.10 travel mm pressure, bar : 207...210 2nd speed rpm : 500 : 3.90...4.30 travel mm Orifice plate 3rd speed rpm : 800 diameter mm : 0,6 travel mm : 6.60...7.00 4th speed rpm : 1100 : 9.00...9.20 travel mm Test Lines : 1 680 750 008 rpm : 1250 5th speed : 10.60...11.00 travel mm Outside diameter x Wall thickness FULL LOAD DELIV. AT FULL LOAD STOP x Length mm : 6.00x2.00x600 1st version (A) Injection pump setting values Speed rpm : 1100 Insp. values in parentheses Aneroid pressure h: 1500 Del.quantity : 199.5...204.5)

Set equal delivery quant.

per values ____

Spread : 8.00 cm3 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 61...69 Testing: 1st rack travel in: 12.80 rpm : 1140...1170 Speed 2nd rack travel in: 4.00 Speed rpm : 1275...1285 4th rack travel in: 1350 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 15...23 Testina: Speed : 275 rpm Minimum rack trave: 7.50 man. Rack travel in mm : 5.78...5.90 CONSTANT REGULATION Speed rpm : 325...520 TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version : 1100 1st speed rpm Rack travel in m: 13.80...13.90 2nd speed rpm : 650 Rack travel in m: 13.00...13.20 3rd speed rpm : 500 Rack travel in m: 12.20...12.60 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1100 rpm hPa : 1500 Pressure Rack travel mm : 13.80...13.90 Measurement Speed 1/min: 1100 1st pressure hPa : -Rack travel in m: 9.30...9.70 2nd pressure hPa : 330 Rack travel in m: 10.60...10.70

Speed Speed Spread Speed Speed Speed Speed Spread

START CUT-OUT 1/min : 280 (290) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 : 650 rpm Del.quantity cm3/: 198.5...204.5 1000 s: (195.5...207.5) cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -: 800 rpm Del.quantity cm3/: 91.5...95.5 1000 s: (89.5...97.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.80 rpm : 1140...1170 STARTING FUEL DELIVERY : 100 rpm Del.quantity cm3/: 125.0...165.0 1000 s: (120.0...180.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 350 Rack travel in mm : 5.70...5.90 Del.quantity cm3/: 15.5...21.5 1000 s: (13.5...23.5) cm3 : 5.00 1000 s: (9.00) Remarks: : NAVISTAR #1820267C91 Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery Bow dimension: Sliding-sleeve position = 37.0 mm Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70

3rd pressure hPa : 840

Rack travel in m: 12.40...12.70

Note remarks

Test sheet : DEE 7,7 n Edition : 15.06.93 : 02.92 Replaces

: ISO-4113 Test oil

Combination no. : 0 402 776 808

Injection pump

Pump designation : PES6P120A720RS7223

EP type number : 0 412 726 843

Governor

Governor design. : RSV400...1050P0A547

: 0 421 833 349 Governer no.

Customer-spec. information

Customer : JOHN DEERE

Engine : 6101 HZ010

: 241.0 1st version kW Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 075

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 140...150

Test nozzle holder

: 1 688 901 101 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65

: (3.50...3.70)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing. : 0-60-120-180-240-300

: 0.50 (0.75) Tolerance + - °

Time to cyl. no.

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 21.2...21.4

100 s: (20.9...21.7)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 400.0 2nd speed Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 2.2...2.8 100 s: (2.0...3.0)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 1200

Del.quantity : 212.3...217.5)

: 5.00 cm3

Spread 1000 : (9.00)

RATED SPEED

1st version

Control lever ' position degrees: 42...50 Testing: 1st rack travel in: 11.70 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rom : 1155...1165 3rd rack travel in: 4.00 Speed rpm : 1155...1185 4th rack travel in: 1300 Speed rpm : 0.30...1.40 LOW IDLE 1 Control Lever position degrees: 22...30 Setting point wout bumper spring rpm : 400 Rack travel in mm : 5.6 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Rack travel in mm : 6.00...6.20 TORQUE CONTROL. Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 12.70...12.80 2nd speed rpm : 850 Rack travel in m: 13.20...13.40 Aneroid/Altitude Compensator Test 1st version Setting Speed man : 500 Pressure hPa : 1200 Rack travel mm : 13.20...13.40 Measurement Speed 1/min : 500 1st pressure hPa : -Rack travel in m: 10.60...10.80 2nd pressure hpa : 290 Rack travel in m: 11.30...11.40 3rd pressure hPa : 620 Rack travel in m: 12.50...12.90 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 850

Del.quantity cm3/: 222.0...228.0 1000 s: (219.0...231.0) Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 137.5...141.5 1000 s: (135.5...143.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.70 Speed rpm: 1090...1100

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 22.5...28.5
1000 s: (20.5...30.5)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

Adjustment without torque-control E47014 spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Starting/full-load transition speed from holding magnet = 450 1/min.

Start—of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

Note remarks

Test sheet : DEE

: 15.06.93 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 776 809

Injection pump

Pump designation : PES6P120A720RS7255

EP type number : 0 412 726 881

Governor

Governor design. : RSV475...1000PDA551

: 0 421 833 360 Governer no.

Customer-spec. information

Customer : JOHN DEERE

Engine : 6101 ATO10

1st version kW : 221.0

: 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 079

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 140...150

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 3.55...3.65 Prestroke mm

: (3.50...3.70)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed 2 m : 1000

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 21.5...21.7

100 s: (21.2...22.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 475.0

Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 2.2...2.8

100 s: (2.0...3.0)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1200

: 215.0...217.0 Del.quantity

1000 : (212.0...220.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testina:

1st rack travel in: 11.10

rpm : 1050...1060 Speed

2nd rack travel in: 4.00

rpm : 1120...1130 Speed

3rd rack travel in: 4.00

rpm : 1125...1155 Speed

4th rack travel in: 1250

rpm : 0.30...1.40Speed

LOW IDLE 1

Control lever

position degrees: 21...29

Setting point w/out bumper spring

rpm : 475

Rack travel in mm: 4.9

Testina:

Speed : 100 rpm

Minimum rack trave: 19.00

rpm : 475

Rack travel in mm : 5.30...5.50

Aneroid/Altitude

Compensator Test

1st version

Setting

rpm : 500 hPa : 1200 Speed rom

Pressure

Rack travel mm : 12.10...12.20

Measurement

Speed $1/\min : 500$

1st pressure hPa : -

Rack travel in m: 9.80...10.00

2nd pressure hPa : 460

Rack travel in m: 10.60...10.70

3rd pressure hPa : 735

Rack travel in m: 11.50...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 136.0...140.0

1000 s: (134.0...142.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

rpm : 1050...1060 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 85.0...125.0 1000 s: (80.0...130.0) Rack travel in mm: 20.00...21.00

LOW IDLE

Speed rpm : 475
Rack travel in mm : 5.30...5.50
Del.quantity cm3/ : 22.0...28.0
1000 s: (20.0...30.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

Start-of-delivery blocking 8,75° after 3

start of delivery of cylinder no. 1.

Starting/full-load transition speed from holding magnet = 450 1/min.

Note remarks

Test sheet

: DEE : 15.06.93 Edition

Replaces

Test oil

: ISO-4113

Combination no. : 0 402 776 810

Injection pump

Pump designation : PES6P120A720RS7255

EP type number

: 0 412 726 881

Governor

Governor design.

: RSV475...1050P0A547

Governer no.

: 0 421 833 380

Customer

Customer-spec. information : JOHN DEERE

Engine

: 6101 AT012

1st version kW

: 209.0

Rated speed

: 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 2 417 413 079

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 140...150

Test nozzle holder

assembly

: 1 688 901 101

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,6

Test lines

: 1 680 750 015

Outside diameter

x Wall thickness

x Length mm

: 6.00X3.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm

: 3.55...3.65 : (3.50...3.70)

Rack travel in mm : 9.00...12.00

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. ro. : 1

BASIC SETTING

1st speed

Spread

Spread

rpm : 1050

Rack travel in mm : 11.80...11.90

Del.quantity cm3/: 20.9...21.1

100 s: (20.6...21.4)

cm3 : 0.5

100 s: (0.9)

rpm : 475.0

2nd speed Rack travel in mm: 5.0...5.2

Del.quantity cm3/: 1.7...2.3

· 100 s: (1.5...2.5)

cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1050

Aneroid pressure h: 1500

Del.quantity : 209.0...211.0

Spread

1000 : (206.0...214.0)

: 5.00 cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 51...59

Testing:

1st rack travel in: 10.80

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

Speed rpm : 1185...1195

3rd rack travel in: 4.00

rpm : 1180...1210 Speed

4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 33...41

Setting point w/out bumper spring

: 475 rpm

Rack travel in mm : 4.6

Testina:

Speed : 100 rom

Minimum rack trave: 19.00 rpm : 475

Rack travel in mm: 5.00...5.20

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 11.80...11.90

2nd speed rpm : 700

Rack travel in m: 12.10...12.30

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 500 mar hPa : 1500 Pressure

Rack travel mm : 11.80...11.90

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.90...10.10

2nd pressure hPa : 530

Rack travel in m: 10.60...10.70

3rd pressure hPa : 850

Rack travel in m: 11.50...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500

Speed rpm : 700 Del.quantity cm3/: 214.0...220.0 1000 s: (211.0...223.0)

Aneroid pressure h: -Speed

rpm : 500

Del.quantity cm3/: 144.0...148.0

1000 s: (142.0...150.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 85.0...125.0

1000 s: (80.0...130.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

rpm : 475 Speed

Rack travel in mm : 5.00...5.20 Del.quantity cm3/: 17.5...23.5 1000 s: (15.5...25.5)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: JOHN DEERE # RE46181 Start-of-delivery blocking 8,75° after

start of delivery of cylinder no. 1.

Starting/full-load transition speed from holding magnet = 450 1/min.

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in

full-load delivery with torque-control

spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DEE Edition : 15.06.93 Replaces Test oil : ISO-4113 Combination no. : 0 402 776 811 Injection pump Phasing Pump designation : PES6P120A720RS7255 EP type number : 0 412 726 881 Governor Governor design. : RSV400...1050P0A547 Governer no. : 0 421 833 409 Customer spec. information 1st speed Customer : JOHN DEERE Engine : 6101 AF010 1st version kW : 242.0 Rated speed : 2100 TEST BENCH REQUIREMENTS Spread Test oil inlet temp. °C : 38...42 2nd speed Overflow valve : 2 417 413 079 Inlet press., bar: 1.50 Spread Overflow quantity min. 1/h: 140...150 Test nozzle holder : 1 688 901 101 assembly Opening. : 207...210 Pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 015 Speed

Test lines : 1 680 750 015

Outside diameter

× Wall thickness

× Length mm : 6.00X3.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values ______

BEGINNING OF DELIVERY Test pressure, bar: 27...29 Prestroke mm : 3.55...3.65 : (3.50...3.70) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm : 1050Rack travel in mm : 12.50...12.60 Del.quantity cm3/: 22.5...22.7 100 s: (22.2...23.0) cm3 : 0.5100 s: (0.9) rpm : 400.0 Rack travel in mm: 5.4...5.6 Del.quantity cm3/: 2.4...3.0 100 s: (2.2...3.2) cm3 : 0.8 100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 808 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 5.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1050 Aneroid pressure h: 1500 Del.quantity : 223.3...230.5) : 5.00 Spread cm3 1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 11.50

Speed rpm : 1095...1105

2nd rack travel in: 4.00

: 1150...1160 Speed rom

3rd rack travel in: 4.00

: 1150...1180 Speed **FOR**

4th rack travel in: 1250

Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever

position degrees: 21...29

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm: 5.0

Testing:

Speed חהכנרו

Minimum rack trave: 19.00

Speed rpm : 400 Rack travel in mm : 4.90...5.10

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 12.50...12.60

2nd speed rpm : 750

Rack travel in m: 12.90...13.10

Aneroid/Altitude

Compensator Test

1st version

Settina

Speed : 500 rpm Pressure hPa : 1500

: 12.90...13.10 Rack travel mm

Measurement

Speed $1/\min: 500$

1st pressure hPa : -

Rack travel in m: 9.60...9.80

2nd pressure hPa : 620

Rack travel in m: 10.50...10.60 3rd pressure hPa : 1020

Rack travel in m: 11.90...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500

Speed rpm : 750 Del.quantity cm3/: 230.5...236.5 1000 s: (227.5...239.5)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 124.0...128.0 1000 s: (122.0...130.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

rpm : 1095...1105 Speed

STARTING FUEL DELIVERY

Speed rpm

Del.quantity cn3/: 35.0...125.0

1000 s: (80.0...130.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.40...5.60

Del.quantity cm3/: 24.5...30.5 1000 s: (22.5...32.5)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: JOHN DEERE # RE46179

Start-of-delivery blocking 8,75° after start of delivery of cylinder no. 1.

Starting/full-load transition speed from holding magnet = 450 1/min.

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control

spring retainer.

Note remarks

Test sheet : DEE

Edition : 15.06.93

Replaces

Test oil : ISO-4113

Combination no. : 0 402 776 812

Injection pump

Pump designation : PES6P120A720RS7255

EP type number : 0 412 726 881

Governor

: RSV400...1050P0A547 Governor design.

: 0 421 833 410 Governer no.

Customer-spec. information

Customer : JOHN DEERE

Engine : 6101 AF010

1st version kW : 225.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 079

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 140...150

Test nozzle holder

: 1 688 901 101 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X3.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 3.55...3.65 Prestroke mm

: (3.50...3.70) Rack travel in mm : 9.00...12.00

Firing order : 1-5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.70...11.80

Del.quantity cm3/: 20.6...20.8

100 s: (20.3...21.1)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 400.0

Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 2.6...3.2 100 s: (2.4...3.4)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1500

: 206.0...208.0 Del.quantity

1000 : (203.0...211.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control Lever

position degrees: 44...52

Testina:

1st rack travel in: 10.70

Speed rpm : 1095...1105 2nd rack travel in: 4.00

rpm : 1165...1175 Speed

3rd rack travel in: 4.00

rpm : 1165...1195 Speed

4th rack travel in: 1300

rom : 0.30...1.40Speed

LOW IDLE 1

Control lever

position degrees: 23...31

Setting point w/out bumper spring

rom : 400 Rack travel in mm: 5.1

Testina: Speed : 100 man

Minimum rack trave: 19.00 Speed rpm : 400

Rack travel in mm : 5.50...5.70

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 11.70...11.80

2nd speed rpm : 750

Rack travel in m: 12.20...12.40

Aneroid/Altitude

Compensator Test

1st version

Settina

Speed rom : 500 hPa : 1500 Pressure

: 11.70...11.80 Rack travel mm

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 9.60...9.80

2nd pressure hPa : 560

Rack travel in m: 10.40...10.50

3rd pressure hPa : 925

Rack travel in m: 11.60...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500

Speed rom : 750 Del.guantity cm3/: 213.0...219.0

1000 s: (210.0...222.0)

Ameroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 125.0...129.0

1000 s: (123.0...131.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed : 100 rpm

Dei.quantity cm3/: 85.0...125.0

1000 s: (80.0...130.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 26.5...32.5

1000 s: (24.5...34.5)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: JOHN DEERE # RE42225

Start-of-delivery blocking 8,75° after start of delivery of cylinder no. 1.

Starting/full-load transition speed from holding magnet = 450 1/min.

Adjustment without torque-control spring retainer with 1 mm Less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS BEGINNING OF DELIVERY Test pressure, bar: 22...24 Note remarks Prestroke mm : 2.85...2.95 Test sheet : NAV : (2.80...3.00) Edition : 15.06.93 Rack travel in mm : 9.00...12.00 Replaces : 1-5- 3- 6- 2- 4 Firing order Test oil : ISO-4113 Combination no. : D 402 776 813 Phasing : 0-60-120-180-240-300 Injection pump Pump designation : PES6P120A320LS7285 Tolerance + - ° : 0.50 (0.75) EP type number : 0 412 726 892 Governor Time to cyl. no. : 1 Governor design. : RSV350...750P4A563 Governer no. : 0 421 833 411 BASIC SETTING Customer-spec. information 1st speed rpm : 700 Customer : NAVISTAR Rack travel in mm: 12.40...12.50 Engine : DTA-531 Del.quantity cm3/: 22.5...22.7 1st version kw : 231.0 Rated speed : 1500 100 s: (22.2...23.0) TEST BENCH REQUIREMENTS cm3 : 0.5Spread Test oil 100 s: (0.9) inlet temp. °C : 38...42 rpm : 350.0 2nd speed Overflow valve Rack travel in mm: 4.9...5.1 : 2 417 413 076 Del.quantity cm3/: 1.2...1.8 100 s: (1.0...2.0) Inlet press., bar : 2.80 cm3 : 0.8 Spread 100 s: (1.2) Overflow quantity min. 1/h: 170...190 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -1 assembly Speed rpm: 800 Rack travel in mm: 0.30...0.70 : 1 688 901 101 Opening pressure, bar : 207...210 Governor spring pre-tension Click setting x : 3.00Orifice plate diameter mm : 0,6 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 008 Speed rpm : 700 225.0...227.0 Del.quantity Outside diameter 1000 : (222.0...230.0) x Wall thickness Spread cm3 : 5.00 x Length mm : 6.00x2.00x600 1000 : (9.00) (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant.

1st version

Netrol lever

sition degrees: 35...43

per values ____

Testina:

1st rack travel in: 11.40 rpm : 765...775 Speed

2nd rack travel in: 4.00

Speed rpm : 800...810 3rd rack travel in: 4.00

rpm : 805...815 Speed 4th rack travel in: 850

rpm : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 14...22

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm: 5.0

Testing:

rpm Speed : 100 Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 4.90...5.10

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.40 rpm : 765...775 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm -

Del.quantity cm3/: 165.0...205.0 1000 s: (160.0...210.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350

Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 12.0...18.0 1000 s: (10.0...20.0)

cm3 : 8.00 Spread 1000 s: (12.00)

Remarks:

: NAVISTAR #1820275c91

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Delivery-valve spring pre-tension = 6.30...6.40 mm. Permissible alteration from 6.00...6.70 mm

APPLICATION

Generator

B20

Note remarks

Test sheet : NAV

Edition : 15.06.93

Replaces

Test oil : ISO-4113

Combination no. : 0 402 776 813B

Injection pump

Pump designation : PES6P120A320LS7285

EP type number : 0 412 726 892

Governor

Governor design. : RSV350...750P4A563

: D 421 833 411 Governer no.

Cust. part no. : 1820275c91B

Customer-spec, information Customer : NAVISTAR

Engine : DTA-531

1st version kW : 221.0 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 076

Inlet press., bar: 2.80

Overflow

quantity min. 1/h: 170...190

Test nozzle holder

: 1 688 901 101 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.85...2.95

: (2.80...3.90)

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 11.30...11.40

Del.quantity cm3/: 18.5...18.7

100 s: (18.2...19.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 1.2...1.8

100 s: (1.0...2.0)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 185.5...187.5

1000 : (182.5...190.5)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Control Lever

position degrees: 41...49

Testina:

1st rack travel in: 10.30

rpm : 910...920 Speed

2nd rack travel in: 4.00

rpm : 940...950 Speed

3rd rack travel in: 4.00

rpm : 945...955 Speed

4th rack travel in: 1000

Speed rom : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 14...22

Setting point w/out bumper spring

rpm : 350

Rack travel in mm : 5.0

Testina:

: 100 Speed rpm

Minimum rack trave: 19.00

: 350 rpm Speed

Rack travel in mm : 4.90...5.10

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30

rpm : 910...920 Speed

STARTING FUEL DELIVERY

Speed rom : 100

Del.quantity cm3/: 165.0...205.0

1000 s: (160.0...210.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 4.90...5.10

Del.quantity cm3/: 12.0...18.0

1000 s: (10.0...20.0)

Spread cm3 : 8.00

1000 s: (12.00)

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Delivery-valve spring pre-tension =

6.30...6.40 mm.

Permissible alteration from 6.00...6.70

APPLICATION

Generator

822

Note remarks

Test sheet

: NAV

Edition

: 15.06.93

Replaces

Test oil

: ISO-4113

Combination no. : 0 402 776 8130

Injection pump

Pump designation : PES6P120A320LS7285

EP type number

: 0 412 726 892

Governor

Governor design. : RSV350...750P4A563

Governer no.

: 0 421 833 411

Cust. part no.

: 18202750910

Customer

Customer-spec. information

: NAVISTAR

Engine

: DTA-531

1st version kw

: 201.0

Rated speed

: 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 2 417 413 076

Inlet press., bar: 2.80

Overflow

quantity min. 1/h: 170...190

Test nozzle holder

assembly

: 1 688 901 101

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,6

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm

: 2.85...2.95

: (2.80...3.00)

Rack travel in mm : 9.00...12.00 Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 850

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 17.0...17.2

100 s: (16.7...17.5)

Spread

cm3 : 0.5

100 s: (0.9)

2nd speed

rpm : 350.0

Rack travel in mm: 4.9...5.1

Del.quantity cm3/: 1.2...1.8

100 s: (1.0...2.0)

cm3 : 0.8

Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Del.quantity

Speed

rpm : 850

: 170.5...172.5

1000 : (167.5...175.5)

Spread

: 5.00 cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 9.70

rpm : 910...920 Speed

2nd rack travel in: 4.00

rpm : 940...950 Speed

3rd rack travel in: 4.00

rpm : 945...955 Speed

4th rack travel in: 1000

rpm : 0.00...1.00Speed

LOW IDLE 1

Control Lever

position degrees: 14...22

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 5.0

Testing:

Speed : 100 TOM:

Minimum rack trave: 19.00

rpin : 350

Rack travel in mm : 4.90...5.10

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70

Speed rom : 910...920

STARTING FUEL DELIVERY

Speed

rpm : 100

Del.quantity cm3/: 165.0...205.0

1000 s: (160.0...210.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed

rpm : 350

Rack travel in mm : 4.90...5.10

Del.quantity cm3/: 12.0...18.0

1000 s: (10.0...20.0)

Spread

cm3 : 8.00

1000 s: (12.00)

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Delivery-valve spring pre-tension =

6.30...6.40 mm. Permissible alteration from 6.00...6.70

APPLICATION

Generator

B24

Note remarks

Test sheet : NAV

Edition : 15.06.93

Replaces

Test oil : ISO-4113

Combination no. : 0 402 776 8130

Injection pump

Pump designation : PES6P120A320LS7285

EP type number : 0 412 726 892

Governor

Governor design. : RSV350...750P4A563

: 0 421 833 411 Governer no.

Cust. part no. : 18202750910

Customer-spec. information

Customer : NAVISTAR

Engine : DTA-531

1st version kW : 208.0 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 076

Inlet press., bar : 2.80

Overflow

quantity min. 1/h: 170...190

Test nozzle holder

assembly : 1 688 901 101

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 2.85...2.95 Prestroke mm

: (2.80...3.00)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm: 11.30...11.40

Del.quantity cm3/: 19.8...20.0

100 s: (19.5...20.3)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 350.0 2nd speed

Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 1.2...1.8

100 s: (1.0...2.0)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

: 198.0...200.0 Del.quantity

1000 : (195.0...203.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 35...43

Testing:

1st rack travel in: 10.30 Speed rpm : 765...775 2nd rack travel in: 4.00

: 790...800 Speed rpm 3rd rack travel in: 4.00 rpm : 795...805 Speed 4th rack travel in: 850

: 0.00...1.00 Speed COM

LOW IDLE 1 Control Lever

position degrees: 14...22 Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 5.0

Testina:

: 100 Speed תוכניו Minimum rack trave: 19.00 Speed

Rack travel in mm : 4.90...5.10

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.30 Speed L DUI : 765...775

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 165.0...205.0

1000 s: (160.0...210.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed : 350 rom

Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 12.0...18.0 1000 s: (10.0...20.0)

Spread cm3 : 8.00

1000 s: (12.00)

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Delivery-valve spring pre-tension =

6.30...6.40 mm.

Permissible alteration from 6.00...6.70

APPLICATION

Generator

B26

Note remarks

Test sheet : NAV

Edition : 15.06.93

Replaces : -

Test oil : ISO-4113

Combination no. : 0 402 776 813E

Injection pump

Pump designation : PES6P120A320LS7285

EP type number : 0 412 726 892

Governor

Governor design. : RSV350...750P4A563

Governer no. : 0 421 833 411

Cust. part no. : 1820275091E

Customer spec. information Customer : NAVISTAR

Engine : DTA-531

1st version kW : 185.0 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 076

Inlet press., bar: 2.80

Overflow

quantity min. 1/h: 170...190

Test nozzle holder

assembly : 1 688 901 101

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.85...2.95

: (2.80...3.00)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 18.2...18.4

100 s: (17.9...18.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0
Rack travel in mm : 4.9...5.1
Del.quantity cm3/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

peed rpm: 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spread

Speed rpm: 700

Del.quantity : 182.5...184.5 1000 : (179.5...187.5)

cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 34...42

Testing:

1st rack travel in: 9.70 Speed rpm : 765...775 2nd rack travel in: 4.00

Speed rpm : 790...800 3rd rack travel in: 4.00 Speed rpm : 795...805

4th rack travel in: 850 Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 14...22

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 5.0

Testing:

Speed rpm: 100 Minimum rack trave: 19.00 Speed rpm: 350

Rack travel in mm : 4.90...5.10

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.70 Speed rpm : 765...775

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 165.0...205.0

1000 s: (160.0...210.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm: 350

Rack travel in mm : 4.90...5.10 Del quantity cm3/ : 12.0...18.0 1000 s: (10.0...20.0)

Spread cm3 : 8.00 1000 s: (12.00)

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Delivery-valve spring pre-tension =

6.30...6.40 mm. Permissible alteration from 6.00...6.70

APPLICATION

Generator

B28

Note remarks

Test sheet

: NAV Edition : 15.06.93

Replaces

Test oil : ISO-4113

Combination no. : 0 402 776 814

Injection pump

Pump designation : PES6P120A320LS7285

EP type number : 0 412 726 892

Governor

Governor design. : RSV350...1000P4A564

: 0 421 833 413 Governer no.

Customer-spec. information Customer : NAVISTAR

: DTA-531 Engine

1st version kW : 224.0 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 076

Inlet press., bar : 2.80

Overflow

quantity min. 1/h: 170...190

Test nozzle holder

: 1 688 901 101 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.85...2.95

: (2.80...3.00)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Firing order

Phasina : 0-60-120-180-240-300

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 12.80...12.90

Del.quantity cm3/: 20.0...20.2

100 s: (19.7...20.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.8...6.D Del.quantity cm3/ : 2.9...3.5

100 s: (2.7...3.7)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1500

: 200.0...202.0 Del.quantity

1000 : (197.0...205.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 51...59

Testing:

1st rack travel in: 11.80

rpm : 1050...1060 Speed

2nd rack travel in: 4.00

rpm : 1095...1105 Speed

3rd rack travel in: 4.00

rpm : 1100...1110 Speed

4th rack travel in: 1150

Speed rem : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 19...27

Setting point w/out bumper spring

: 350 rpm

Rack travel in mm: 5.9

Testina: Speed

rpm : 100

Minimum rack trave: 19.00

rpm : 350 Speed

Rack travel in mm : 5.80...6.00

Aneroid/Altitude Compensator Test

1st version

Settina

Speed : 1000 rom

Pressure h2a : 1500

Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 1000

1st pressure hPa : -

Rack travel in m: 7.40...7.80

2nd pressure hPa : 430

Rack travel in m: 8.90...9.00

3rd pressure hPa : 930

Rack travel in m: 11.30...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 85.5...89.5 1000 s: (83.5...91.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80

rpm : 1050...1060 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 165.0...205.0 1000 s: (160.0...210.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 5.80...6.00

Del.quantity cm3/: 29.5...35.5 1000 s: (27.5...37.5) Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Delivery-valve spring pre-tension =

6.30...6.40 mm.

Permissible alteration from 6.00...6.70

Note remarks

Test sheet : NAV

Edition : 15.06.93

Replaces

Test oil : ISO-4113

Combination no. : 0 402 776 814A

Injection pump

Pump designation : PES6P120A320LS7285

EP type number : 0 412 726 892

Governor

Governor design. : RSV350...1000P4A564

Governer no. : 0 421 833 413

Cust. part no. : 1821048C91A

Customer-spec. information Customer : NAVISTAR

: DTA-531 Engine

1st version kW : 205.0 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 076

Inlet press., bar : 2.80

Overflow

quantity min. 1/h: 170...190

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 2.85...2.95 Prestroke mm : (2.80...3.00)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 17.7...17.9

100 s: (17.4...18.2)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 350.0 2nd speed Rack travel in mm: 5.8...6.0 Del.quantity cm3/: 2.9...3.5 190 s: (2.7...3.7)

cm3 : 0.8 Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000Speed Aneroid pressure h: 1500

: 177.0...179.0 Del.quantity 1000 : (174.0...182.0)

cm3 : 5.00

Spread 1000 : (9.00) RATED SPEED

1st version Control lever

position degrees: 51...59

Testina:

1st rack travel in: 10.90

Speed rpm : 1055...1065

2nd rack travel in: 4.00

rpm : 1095...1105 Speed

3rd rack travel in: 4.00

rpm : 1100...1110 Speed

4th rack travel in: 1150

Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 19...27

Setting point w/out bumper spring

rpm : 350 Speed

Rack travel in nam: 5.9

Testing:

Speed rom : 100 Minimum rack trave: 19.00

rpm : 350

Rack travel in mm : 5.80...6.00

Aneroid/Altitude Compensator Test

1st version Settina

Speed : 1000 rpm Pressure hPa : 1500

Rack travel mm : 12.80...12.90

Measurement

1/min: 1000 Speed

1st pressure hPa : -

Rack travel in m: 7.40...7.80

2nd pressure hPa : 400

Rack travel in m: 8.70...8.90

3rd pressure hPa : 800

Rack travel in m: 10.60...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 85.5...89.5

1000 s: (83.5...91.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.90

rpm : 1055...1065 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 165.0...205.0 1000 s: (160.0...210.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.80...6.00
Del.quantity cm3/: 29.5...35.5
1000 s: (27.5...37.5)

Spread cm3 : 8.00

1000 s: (12.00)

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Delivery-valve spring pre-tension =

6.30...6.40 mm.

Permissible alteration from 6.00...6.70

Note remarks

Test sheet : NAV

Edition : 15.06.93

Replaces

Test oil : ISO-4113

Combination no. : 0 402 776 814B

Injection pump

Pump designation : PES6P120A320LS7285

EP type number : 0 412 726 892

Governor

Governor design. : RSV350...1000P4A564

Governer no. : 0 421 833 413

: 1821048091B Cust. part no.

Customer-spec. information Customer : NAVISTAR

Engine : DTA-531

1st version kW : 186.5 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 076

Inlet press., bar: 2.80

Overflow

quantity min. 1/h: 170...190

Test nozzle holder

assembly : 1 688 901 101

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.85...2.95

: (2.80...3.00)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 15.8...16.0

100 s: (15.5...16.3)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.8...6.0

Del.quantity cm3/: 2.9...3.5 100 s: (2.7...3.7)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-Lever position

Degree: -1

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1500

Del.quantity : 150.0...163.0)

Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 51...59

Testina:

1st rack travel in: 10.10

rpm : 1055...1065 Speed

2nd rack travel in: 4.00

rpm : 1095...1105 Speed

3rd rack travel in: 4.00

rpm : 1100...1110 Speed

4th rack travel in: 1150

rom : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 19...27

Setting point w/out bumper spring

rpm : 350

Rack travel in mm: 5.9

Testing:

Speed : 100 rpm

Minimum rack trave: 19.00

rpm : 350

Rack travel in mm : 5.80...6.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 1000 man

Pressure hPa : 1500

Rack travel nm : 12.80...12.90

Measurement

1/min: 1000 Speed

1st pressure hPa : -

Rack travel in m: 7.40...7.80

2nd pressure hPa : 360

Rack travel in m: 8.50...8.60

3rd pressure hPa : 680

Rack travel in m: 10.00...10.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 85.5...89.5

1000 s: (83.5...91.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

Speed rpm : 1055...1065

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 165.0...205.0 1000 s: (160.0...210.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.80...6.00

Del.quantity cm3/: 29.5...35.5 1000 s: (27.5...37.5)

cm3 : 8.00 Spread

1000 s: (12.00)

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Delivery-valve spring pre-tension =

6.30...6.40 mm.

Permissible alteration from 6.00...6.70

BOSCH INJ. PUMP TEST SPECIFICATIONS BEGINNING OF DELIVERY Test pressure, bar: 27...29 Note remarks : 3.55...3.65 : (3.50...3.70) Prestroke mm Test sheet : DEE Edition : 15.06.93 Rack travel in mm : 9.00...12.00 Replaces Firing order : 1-5-3-6-2-4 Test oil : ISO-4113 Combination no. : 0 402 776 815 Phasing : 0-60-120-180-240-300 Injection ours Pump designation : PES6P120A720RS7255 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ EP type number : 0 412 726 881 Governor Time to cyl. no. : 1 Governor design. : RSV400...900P7A569 : 0 421 833 418 Governer no. BASIC SETTING Customer-spec. information rpm: 850 1st speed Customer : JOHN DEERE Rack travel in mm : 14.90...15.00 : 6101 AF010 Engine Del.guantity cm3/: 30.9...31.1 1st version kW : 285.0 Rated speed : 1800 100 s: (30.6...31.4) TEST BENCH REQUIREMENTS Spread cm3 : 0.5Test oil 100 s: (0,9) inlet temp. °C : 38...42 rpm : 400.0 2nd speed Overflow valve Rack travel in mm: 5.4...5.6 : 2 417 413 079 Del.quantity cm3/ : 2.6...3.2 100 s: (2.4...3.4) Inlet press., bar: 1.50 cm3 : 0.8 Spread 100 s: (1.2) Overflow quantity min. 1/h: 140...150 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 assembly : 1 688 901 101 Speed rpm : 800 Rack travel in mm : 0.30...0.70 Opening | pressure, bar : 207...210 Governor spring pre-tension Click setting x : 5.00Orifice plate diameter mm : 0,6 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 015 Speed rpm : 850 : 309.5...311.5 Del.quantity 1000 : (306.5...314.5) Outside diameter x Wall thickness : 5.00 Spread cm3 x Length mm : 6.00x3.00x600 1000 : (9.00) (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version

Control lever

position degrees: 56...64

per values ____

Testing:

1st rack travel in: 14.10 Speed rpm : 895...905

2nd rack travel in: 4.00

Speed rpm : 950...960

3rd rack travel in: 4.00

Speed rpm : 965...995 4th rack travel in: 1050

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 29...37

Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm : 5.0

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 400

Rack travel in mm: 5.40...5.60

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 14.10 Speed rpm : 895...905

STARTING FUEL DELIVERY

Speed rpm: 100

Del.quantity cm3/: 85.0...125.0

1000 s: (80.0...130.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.40...5.60 Del.quantity cm3/ : 26.0...32.0

1000 s: (24.0...34.0)

Spread cm3 : 8.00 1000 s: (12.00)

Remarks:

: JOHN DEERE # RE42226

Start-of-delivery blocking 8,75° after start of delivery of cylinder no. 1.

Starting/full-load transition speed from holding magnet = 450 1/min.

APPLICATION

Generator

CO8

Note remarks

Test sheet : DEE Edition : 15.06.93

Replaces

Test oil : ISO-4113

Combination no. : 0 402 776 816

Injection pump

Pump designation : PES6P120A720RS7255

EP type number : 0 412 726 881

Governor

Governor design. : RSV400...1050POA547

: O 421 833 419 Governer no.

Customer-spec. information Customer : JOHN DEERE

: 6101 HF010 Engine

1st version kW : 280.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 2 417 413 079

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 140...150

Test nozzle holder

: 1 688 901 101 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65

: (3.50...3.70) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 13.70...13.80

Del.quantity cm3/: 26.1...26.3

100 s: (25.8...26.6)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 400.0 2nd speed

Rack travel in mm : 5.6...5.8 Del.quantity cm3/: 2.9...3.5

100 s: (2.7...3.7)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1500

Del.quantity : 261.5...263.5

1000 : (258.5...266.5)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testina:

1st rack travel in: 12.70

Speed rpm : 1095...1105

2nd rack travel in: 4.00

rpm : 1155...1165 Speed

3rd rack travel in: 4.00

rpm : 1155...1185 Speed

4th rack travel in: 1250

Speed rom : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 17...25

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.2

Testina:

Speed rpm : 100 Minimum rack trave: 19.00

: 400 Speed rpm

Rack travel in mm : 5.60...5.80

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 13.70...13.80

2nd speed rpm : 850

Rack travel in m: 14.00...14.20

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed **CDM** : 500

Pressure hPa : 1500

Rack travel mm : 14.00...14.20

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 9.70...9.90

2nd pressure hPa : 600

Rack travel in m: 10.90...11.00

3rd pressure hPa : 1060

Rack travel in m: 12.70...13.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure in: 1500 : 850 Speed rom

Del.quantity cm3/: 276.0...282.0

1000 s: (273.0...285.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 132.5...136.5

1000 s: (130.5...138.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.70

rpm : 1095...1105 Speed

STARTING FUEL DELIVERY

Speed : 100 mar

Del.quantity cm3/: 85.0...125.0

1000 s: (80.0...130.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.60...5.80 Del.quantity cm3/ : 29.0...35.0

1000 s: (27.0...37.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: JOHN DEERE # RE46178

Start-of-delivery blocking 8,75° after start of delivery of cylinder no. 1.

Starting/full-load transition speed from holding magnet = 450 1/min.

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : MB6,1I Edition : 21.05.92 Replaces : 03.92 Test oil : ISO-4113

Combination no. : 0 403 246 031

Injection pump

Pump designation ; PES6MW100/720RS1515

EP type number

: 0 413 206 013

Governor

Governor design. : RQV300...1300MW125-1

: 0 420 083 258 Governer no.

Customer-spec, information Customer : MB-NFZ

Eriaine : 0M366i_A

1st version kW : 127.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 631 343 009 assembly

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 089

Outside diameter x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm : 5.20...5.30 : (5.15...5.35)

Rack travel in mm : 21.00...0.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 4.2...4.4 Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.00...8.40

2nd speed rpm : 960 travel mm

: 5.40...5.60

3rd speed rpm : 600

: 3.20...3.80 travel mm

4th speed rpm : 300

travel mm : 0.90...1.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1380

Speed Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300Aneroid pressure h: 1000

: 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 108...116 Testing: 1st rack travel in: 10.50 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1430...1460 Speed 4th rack travel in: 1550 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 68...76 Setting point w/out bumper spring прии : 300 Rack travel in mm: 4.3 Testing: rpm : 200 Speed Minimum rack trave: 5.00 Speed rpm : 300 Rack travel in mm : 4.20...4.40 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rom Pressure hPa : --Rack travel mm : 8.90...9.10 Measurement Speed $1/\min : 500$ 1st pressure hPa : 300 Rack travel in m: 9.40...9.60 2nd pressure hPa : 500 Rack travel in m: 11.10...11.30 3rd pressure hPa : 1000 Rack travel in m: 11.50...11.60 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 750 Speed Del.quantity cm3/: 89.0...92.0 1000 s: (86.5...94.5) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -

rpm : 500 Speed Del.quantity cm3/: 35.0...37.0 1000 s: (33.0...39.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.50 Speed rpm : 1340...1350 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 115.0...125.0 1000 s: (112.0...128.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 4.20...4.40 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3 : 3.50 1000 s: (5.50) Remarks:

c12

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Note remarks : 3.25...3.35 Prestroke mm : (3.20...3.40) Test sheet : NAV Rack travel in mm : 9.00...12.00 Edition : 01.03.93 Firing order : 1-5-3-6-2-4 : 08.92 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 239AA Phasina : 0-60-120-180-240-300 Phasing Injection pump Tolerance + - ° : 0.50 (0.75) Pump designation : PES6MW100/320RS1189 EP type number : 0 413 406 177 Time to cyl. no. : 1 Governor Governor design: RQV350...1200MW46-21 BASIC SETTING : 0 420 083 201 Governer no. 1st speed rpm: 1200 Cust, part no. : 1819901091 Rack travel in mm : 12.60...12.70 Customer-spec. information Customer : NAVISTAR Del.quantity cm3/: 13.2...13.6 Engine : DTA-466 100 s: (12.9...13.9) 1st version kW : 186.0 Spread cm3 : 0.6Rated speed : 2400 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 350.02nd speed Test oil Rack travel in mm: 5.2...5.4 inlet temp. °C : 38...42 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Overflow valve cm3 : 0.3 Spread : 2 417 413 038 100 s: (0.5) Inlet press., bar : 2.80 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 101 assembly GUIDE SLEEVE TRAVEL 1st speed rpm : 1450 Opening : 9.80...10.20 travel mm : 207...210 rpm : 1250 pressure, bar 2nd speed travel mm : 7.90...8.10 Orifice plate rpm : 550 3rd speed diameter mm : 0,6 travel mm : 3.10...3.70 4th speed rpm : 350 : 1.30...1.70 travel mm Test lines : 1 680 750 008 FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness 1st version x Length mm : 6.00x2.00x600 Speed rpm : 1200 Aneroid pressure h: 1200 (A) Injection pump setting values Del.quantity : 132.5...136.5 1000 : (129.5...139.5) Insp. values in parentheses Set equal delivery quant. Spread cm3 : 6.00 per values ____ 1000 : (9.00) BEGINNING OF DELIVERY RATED SPEED

1st version Control lever

position degrees: 104...112

Testing:

1st rack travel in: 11.60

Speed rpm : 1285...1305 2nd rack travel in: 4.00

Speed rpm : 1415...1425 4th rack travel in: 1550

riom : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 66...74

Setting point w/out bumper spring Speed rpm : 350

Rack travel in mm: 5.3

Testing:

Speed : 100 COM Minimum rack trave: 9.00 rpm : 350

Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude Compensator Test

1st version

Setting

Speed mci'n : 500 hPa : -Pressure

Rack travel mm : 9.20...9.30

Measurement

Speed 1/min: 500

1st pressure hPa : 250 Rack travel in m: 10.00...10.10 2nd pressure hPa : 560

Rack travel in m: 11.40...11.80

3rd pressure hPa : 1200

Rack travel in m: 12.60...12.70

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 Speed rpm : 800

Del.quantity cm3/: 135.5...137.5

1000 s: (132.5...140.5)

Spread cm3 : 4.00

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 71.5...73.5 1000 s: (69.5...75.5)

PREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.60

rpm : 1285...1305 Speed

STARTING FUEL DELIVERY

Speed ripm : 100

Del.quantity cm3/: 150.0...190.0 1000 s: (147.0...193.0) Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 5.20...5.40 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before shutoff.

Only perform pump setting with original overflow valve without IH hose and

restrictor 1.2 mm diameter.

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Note remarks Prestroke mm : 3.25...3.35 : (3.20...3.40) Test sheet : NAV Rack travel in mm : 9.00...12.00 Edition : 01.03.93 Firing order : 1-5-3-6-2-4 Replaces : 08.92 : ISO-4113 Test oil Combination no. : 0 403 446 254BA Phasing : 0-60-120-180-240-300 Phasing Injection pump Tolerance + - ° : 0.50 (0.75) Pump designation : PES6MW100/320RS1189 EP type number : 0 413 406 177 Time to cyl. no. : 1 Governor Governor design. : RGV350...1200rW46-29 BASIC SETTING : 0 420 083 217 Governer no. 1st speed rpm: 1200 Cust. part no. : 1819902091 Rack travel in mm : 12.60...12.70 Customer-spec. information Customer : NAVISTAR Del.quantity cm3/: 13.2...13.6 Engine : DTA-466 100 s: (12.9...13.9) 1st version kW : 186.0 Spread cm3 : 0.6Rated speed : 240°C 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0 Test oil Rack travel in mm : 5.2...5.4 : 38...42 inlet temp. °C Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Overflow valve Spread cm3 : 0.3: 2 417 413 038 100 s: (0.5) Inlet press., bar: 2.80 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 101 assembly GUIDE SLEEVE TRAVEL 1st speed rpm : 1450 Opening : 9.80...10.20 travel mm : 207...210 pressure, bar 2nd speed rpm : 1250 : 7.90...8.10 travel mm Orifice plate rpm : 550 3rd speed diameter mm : 0,6 : 3.10...3.70 travel mm rpm : 350 4th speed : 1.30...1.70 travel mm Test lines : 1 680 750 008 FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness 1st version x Lenath mm : 6.00x2.00x600 Speed rpm : 1200Aneroid pressure h: 1200 (A) Injection pump setting values Del.quantity : 132.5...136.5 1000 : (129.5...139.5) Insp. values in parentheses Set equal delivery quant. : 6.00 Spread cm3 per values 1000 : (9.00) BEGINNING OF DELIVERY RATED SPEED

C15

1st version Control Lever position degrees: 104...112 Testina: 1st rack travel in: 11.60 rpm ; 1285...1305 Speed 2nd rack travel in: 4.00 Speed rpm : 1415...1425 4th rack travel in: 1550 Speed rpm : 0.00...1.00 LOW IDLE 1 Control Lever position degrees: 66...74 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm: 5.3 Testina: Speed : 100 (TOM) Minimum rack trave: 9.00 rpm : 350 Speed Rack travel in mm : 5.20...5.40 CONSTANT REGULATION rpm : 300...450 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rom Pressure hPa : Rack travei mm : 9.20...9.30 Measurement 1/min: 500 Speed 1st pressure hPa : 250 Rack travel in m: 10.00...10.10 2nd pressure hPa : 560 Rack travel in m: 11.40...11.80 3rd pressure hPa : 1200 Rack travel in m: 12.60...12.70 START CUT-OUT

3rd pressure hPa : 1200
Rack travel in m: 12.60...12.

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 800

Aneroid pressure h: 1200

full load rack tr: 11.60 Speed rpm : 1285...1305

STARTING FUEL DELIVERY

LOW IDLE

Remarks:

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before shutoff.

Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter.

Speed

BOSCH INJ. PLMP TEST SPECIFICATIONS Prestroke mm : 3.80...3.90 : (3.75...3.95) Note remarks Rack travel in mm : 13.00...0.00 Firing order : 1-5- 3- 6- 2- 4 Test sheet : 01.03.93 Edition Replaces Test oil : ISO-4113 Phasina : 0-60-120-180-240-300 Combination no. : 0 403 446 315 Tolerance + - " : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/320LS1230 EP type number : 0 413 406 222 1st speed rpm: 950 Governor Governor design: RQ275/950MW130 Rack travel in mm : 13.10...13.20 Governer no. : 0 420 082 071 Del.quantity cm3/: 13.0...13.2 Customer-spec. information Customer : RBOS-HU 100 s: (12.7...13.5) : D10UTS150 Engine Spread cm3 : 0.41st version kW : 150.0 100 s: (0.7) Rated speed : 1900 2nd speed rpm : 275.0
Rack travel in mm : 7.8...8.0 TEST BENCH REQUIREMENTS Del.quantity cm3/ : 1.5...1.9 Test oil 100 s: (1.2...2.1) inlet temp. °C : 38...42 Spread cm3 : 0.3100 s: (0.5) Overflow valve : 1 417 413 047 (B) Setting of injection pump with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 1050assembly : 1 688 901 101 : 7.70...8.30 travel mm rpm : 1010 2nd speed Opening travel mm : 6.30...6.50 : 207...210 pressure, bar 3rd speed rpm : 700 travel mm : 5.80...6.20 Orifice plate : 385 4th speed rpm diameter mm : 0,6 : 4.00...4.40 travel mm 5th speed rpm : 275 : 1.80...2.00 travel mm Test lines : 1 680 750 008 GUIDE SLEEVE POSITION Outside diameter Control-lever position x Wall thickness Degree: 108 x Length mm : 6.00x2.00x600 rpm : 700 Speed Rack travel in mm : 19.20...20.80 (A) Injection pump setting values Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP Set equal delivery quant. per values 1st version Speed rom: 950 BEGINNING OF DELIVERY Aneroid pressure h: 800 Test pressure, bar: 30...32 Del.quantity

: 130.0...132.0 1000 : (127.0...135.0) Spread

cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: 90...98

Setting point:

Speed rpm : 700 Rack travel in mm: 20.0

Testing:

1st rack travel in: 12.10

rpm : 1005...1020 Speed

2nd rack travel in: 4.00

Speed rpm : 1070...1100

4th rack travel in: 1200

Speed rpm : 0.10, ...1.00

LOW IDLE 1

control lever

position degrees: 70...78

Setting point w/out bumper spring

Speed rpm : 275 Rack travel in mm : 7.9

Testing:

rpm : 150 Speed Minimum rack trave: 9.50 Speed rpm : 275 Rack travel in mm : 7.80...8.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : 310 Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : 800

Rack travel in m: 13.10...13.20

2nd pressure hPa : -

Rack travel in m: 11.00...11.10 3rd pressure hPa : 310

Rack travel in m: 12.80...12.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rom : 500

Del.quantity cm3/: 95.0...97.0

1000 s: (93.0...99.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.10

rpm : 1005...1020 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 160.0...180.0

1000 s: (157.0...183.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 7.80...8.00

Del.quantity cm3/: 15.0...19.0 1000 s: (12.5...21.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,3 D 1 Edition : 01.03.93

: 10.91 Replaces Test oil : ISO-4113

Combination no. : 0 403 456 116

Injection pump

Pump designation : PES6MW100/321RS1215

EP type number : 0 413 406 205

Governor

Governor design. : RQ250/1200MW84-8 : 0 420 082 063 Governer no.

Customer-spec, information : MAN Customer

Engine : D 0826 LF 04

1st version kW : 199.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.60...13.70

Del.quantity cm3/: 16.7...16.9

100 s: (16.4...17.2)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 250.02nd speed Rack travel in mm: 5.5...5.7 Del.quantity cm3/: 2.1...2.5

100 s: (1.8...2.7)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1320

: 9.30...9.70 travel mm

rpm : 1255 2nd speed

: 6.50...6.70 travel mm

3rd speed

rpm : 360 : 3.90...4.50 travel mm

rpm : 250 4th speed

travel mm : 1.60...2.00

GUIDE SLEEVE POSITION Control-lever position

Degree: 108

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1200

Del.quantity : 167.5...169.5 1000 : (164.5...172.5)

cm3 : 4.00 Spread

1000 : (7.50)

RATED SPEED 1st version Control lever position degrees: 91...99 Setting point: Speed rpm : 600 Rack travel in mm: 20.0 Testing: 1st rack travel in: 12.60 rpm : 1245...1260 Speed 2nd rack travel in: 4.00 Speed rom : 1340...1370 4th rack travel in: 1400 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 67...75 Setting point w/out bumper spring : 250 Speed חסמ Rack travel in mm: 5.6 Testing: Speed rpm : 150 Minimum rack trave: 7.50 : 250 Speed man Rack travel in mm : 5.50...5.70 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 man hPa : 200 Pressure Rack travel mm : 10.00...10.10 Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 9.50...9.60 2nd pressure hPa : 700 Rack travel in m: 12.30...12.60 3rd pressure hPa : 1200 Rack travel in m: 13.60...13.70 FUEL DELIVERY CHARACTERISTICS

Spread cm3 : 6.001000 s: (9.0) Aneroid pressure h: 1200 Speed rpm : 800 Del.quantity cm3/: 167.0...171.0 1000 s: (164.0...174.0) Aneroid pressure h: 1200 Speed rpm : 1200 Del.quancity cm3/ : 163.0...167.0 1000 s: (160.0...170.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 77.0...79.0 1000 s: (75.0...81.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.60 Speed rpm : 1245...1260 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 70.0...90.0 1000 s: (67.0...93.0) LOW IDLE Speed rpm : 250
Rack travel in mm : 5.50...5.70
Del.quantity cm3/ : 21.0...25.0
1000 s: (18.5...27.5) Spread cm3 : 3.501000 s: (5.50) Remarks: : MAN #3-7137

Start-of-delivery mark is at start of

delivery of cylinder 1

1st version

Aneroid pressure h: 1200

rpm Del.quantity cm3/: 174.0...178.0

: 600

1000 s: (171.0...181.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,3 D 2 Edition : 01.03.93 Replaces : 10.91

Test oil : ISO-4113

Combination no. : 0 403 456 117

Injection pump

Pump designation : PES6MW100/321RS1215

: 0 413 406 205 EP type number

Governor

Governor design. : RQV250...1200MW83-2

: 0 420 083 216 Governer no.

Customer-spec. information Customer : MAN

Engine : D 0826 LF 04

1st version kW : 199.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 13.60...13.70

Del.quantity cm3/: 16.7...16.9

100 s: (16.4...17.2)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0 Rack travel in mm: 5.5...5.7 Del.quantity cm3/: 2.1...2.5 100 s: (1.8...2.7)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250

: 10.60...11.00 travel mm

2nd speed rpm : 800

travel mm : 5.90...6.10

3rd speed rpm : 450

: 3.20...3.80 rpm : 250 travel mm

4th speed

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1200

: 167.5...169.5 Del.quantity 1000 : (164.5...172.5)

: 4.00 cm3

Spread 1000:(7.50)

RATED SPEED

1st version

Control lever

position degrees: 124...132

Testing: 1st rack travel in: 12.60 : 1250...1260 Speed man 2nd rack travel in: 4.00 rpm : 1340...1370 Speed 4th rack travel in: 1400 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 67...75 Setting point w/out bumper spring : 250 rpm Rack travel in mm: 5.6 Testing: Speed : 150 man Minimum rack trave: 7.50 Speed rom Rack travel in mm : 5.50...5.70 Aneroid/Altitude Compensator Test 1st version Setting Speed man : 500 hPa : 200 Pressure Rack travel mm : 10.00...10.10 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.50...9.60 2nd pressure hPa : 700 Rack travel in m: 12.30...12.60 3rd pressure hPa : 1200 Rack travel in m: 13.60...13.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 600 Del.quantity cm3/: 174.0...178.0 1000 s: (171.0...181.0) Spread cm3: 6.00 1000 s: (9.0) Aneroid pressure h: 1200 : 800 rpm Del.quantity cm3/: 167.0...171.0 1000 s: (164.0...174.0) Aneroid pressure h: 1200 : 1200 Speed rpm Del.quantity cm3/: 163.0...167.0 1000 s: (160.0...170.0) Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 77.0...79.0 1000 s: (75.0...81.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.60 Speed rpm : 1250...1260

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 70.0...90.0 1000 s: (67.0...93.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.50...5.70
Del.quantity cm3/ : 21.0...25.0
1000 s: (18.5...27.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: MAN #3-7138

Start-of-delivery mark is at start of delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Note remarks : 3.50...3.60 Prestroke mm : (3.45...3.65) Test sheet : CUM Rack travel in mm : 9.00...12.00 : 26.02.93 Edition Firing order : 1-5-3-6-2-4 Replaces : 06.92 Test oil : ISO-4113 Combination no. : 0 403 466 127 Phasing : 0-60-120-180-240-300 Phasina Injection pump Tolerance + - ° : 0.50 (0.75) Pump designation : PES6MW100/120RS1137-Time to cyi. no. : 1 EP type number : 0 413 406 180 Governor BASIC SETTING Governor design. : RSV550...1100MW2A335 1st speed rom : 1100Governer no. : 0 420 085 185 Rack travel in mm : 14.40...14.50 Customer-spec. information Customer : CUMMINS Del.quantity cm3/: 15.2...15.4 Engine : 6 CTA-8.3 100 s: (14.9...15.7) : 194.0 1st version kW Spread cm3 : 0.4Rated speed : 2200 100 s: (0.7) TEST BENCH REQUIREMENTS 2nd speed rpm : 550.0 Test oil Rack travel in mm: 6.8...7.2 inlet temp. °C : 38...42 Del.quantity cm3/: 2.2...2.6 100 s: (2.0...2.9) Overflow valve Spread cm3 : 0.3: 1 419 992 198 100 s: (0.5) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 rpm : 800 assembly : 1 688 901 101 Speed Rack travel in mm : 0.30...1.00 Opening. Governor spring pre-tension pressure, bar : 207...210 Click setting x : 4.00Orifice plate diameter mm : 0,6 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test Lines : 1 680 750 014 Speed rpm : 1100 Aneroid pressure h: 900 Del.quantity : 152.5...157.5) Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 Spread cm3 : 4.001000 : (7.50) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant.

> 1st version Control Lever

position degrees: 93...101

per values

BEGINNING OF DELIVERY

Setting point:

Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 13.40

: 1165...1175 rom

2nd rack travel in: 4.00

Speed rpm : 1240...1250 3rd rack travel in: 4.00

Speed rpm : 1240...1270 4th rack travel in: 1350

Speed rpm : 0.30...1.70

LOW IDLE 1

Control Lever

position degrees: 68...76

Setting point w/out bumper spring

Speed rom Rack travel in mm: 6.5

resting:

Speed : 100 rpm

Minimum rack trave: 19.00

: 550 Speed rpm

Rack travel in mm : 6.40...6.60

TORQUE CONTROL

Torque control curve - 1st version

rom : 1100 1st speed

Rack travel in m: 14.40...14.50

rpm : 750 2nd speed

Rack travel in m: 15.00...15.20

3rd speed rpm : 1000

Rack travel in m: 15.00...15.20

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 500 rpm Pressure hPa : 900

Rack travel mm : 15.00...15.20

Measurement

Speed $1/\min : 500$

1st pressure hPa : -

Rack travel in m: 11.50...11.70

2nd pressure hPa : 400

Rack travel in m: 12.30...12.40

3rd pressure hPa : 630

Rack travel in m: 13.80...14.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

: 750 Speed riom

Del.quantity cm3/: 156.0...160.0

1000 s: (153.0...163.0)

Spread cm3 : 6.00

1000 s: (9.0)

Aneroid pressure h: -

Speed rom : 500 Del.quantity cm3/ : 100.0...102.0 1000 s: (98.0...104.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.40

rpm : 1165...1175 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 130.0...150.0

1000 s: (127.0...153.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 550

Rack travel in mm : 6.80...7.20

Del.quantity cm3/: 22.5...26.5

1000 s: (20.0...29.0) cm3 : 3.50 1000 s: (5.50)

Remarks:

Spread

: CUM #3911657

Start-of-delivery mark 9° cam angle after start of delivery cyl. 1.

Adjust stop lever to 0.5...1.0 mm

before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Note remarks Prestroke mm : 3.50...3.60 : (3.45...3.65) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Test sheet : CUM Edition : 26.02.93 : 06.92 Replaces : ISO-4113 Test oil Combination no. : 0 403 466 128 Phasing : 0-60-120-180-240-300 Phasing Injection pump Tolerance + - " : 0.50 (0.75) Pump designation : PES6MW100/120RS1137-Time to cyl. no. EP type number : 0 413 406 180 Governor BASIC SETTING : RSV550...1100Mw2A335 Governor design. 1st speed rpm: 1100 : 0 420 085 196 Saverner no. Rack travel in mm : 13.30...13.40 Customer-spec, information Customer : CUMMINS Del.quantity cm3/: 14.0...14.2 Engine : 6 CTA-8.3 100 s: (13.7...14.5) 1st version kW : 176.0 Spread cm3 : 0.4Rated speed : 2200 100 s: (0.7) TEST BENCH REQUIREMENTS 2nd speed rpm : 550.0 Rack travel in mm : 7.0...7.4 Test oil inlet temp. °C : 38...42 Del.quantity cm3/: 2.8...3.2 100 s: (2.6...3.5) Overflow valve Spread cm3 : 0.3: 1 419 992 198 100 s: (0.5) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 assembly : 1 688 901 101 rpm : 800 Rack travel in mm : 0.30...1.00 Openina pressure, bar : 207...210 Governor spring pre-tension Click setting x : 4.00Orifice plate diameter mm. : 0,6 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test Lines : 1 680 750 014 Speed rpm : 1100 Aneroid pressure h: 1000 Outside diameter Del.quantity : 140.0...142.0 x Wall thickness 1000 : (137.0...145.0) x Length mm : 6.00x2.00x600 Spread cm3 : 4.00 1000 : (7.50) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant.

> 1st version Control lever

position degrees: 90...98

per values

BEGINNING OF DELIVERY

Setting point: Speed Rack travel in mm: 0.6 Testing: 1st rack travel in: 12.30 : 1165...1175 Speed man 2nd rack travel in: 4.00 Speed rpm : 1240...1250 3rd rack travel in: 4.00 Speed rpm : 1240...1270 4th rack travel in: 1350 Speed rpm : 0.30...1.70 LOW IDLE 1 Control lever position degrees: 68...76 Setting point w/out bumper spring Speed rpm : 550 Rack travel in mm: 6.7 Testing: Speed : 100 rpm Minimum rack trave: 19.00 Speed : 550 rpm Rack travel in mm : 6.60...6.80 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 13.30...13.40 2nd speed rpm : 750 Rack travel in m: 14.00...14.10 3rd speed rpm : 1000 Rack travel in m: 14.00...14.10 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rom hPa : 1000 Pressure Rack travel mm : 14.00...14.10 Measurement Speed $1/\min : 500$

1st pressure hPa : -Rack travel in m: 10.10...10.20 2nd pressure hPa : 450 Rack travel in m: 11.00...11.10 3rd pressure hPa : 675 Rack travel in m: 12.80...13.20 FUEL DELIVERY CHARACTERISTICS **C26**

1st version Aneroid pressure h: 1000 Speed rpm : 800 Del.quantity cm3/: 152.0...156.0 1000 s: (149.0...159.0) Spread cm3 : 6.001000 s: (9.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 80.0...82.0 1000 s: (78.0...84.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.30 rpm : 1165...1175 Speed STARTING FUEL DELIVERY

Speed mart : 100 Del.quantity cm3/: 130.0...150.0 1000 s: (127.0...153.0) Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 550 Rack travel in mm : 7.00...7.40 Del.quantity cm3/: 28.5...32.5 1000 s: (26.0...35.G) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: CUM #3921691

Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

Adjust stop lever to 0.5...1.0 mm before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 : 3.50...3.60 Note remarks Prestroke mm : (3.45...3.65) Test sheet : CUM Rack travel in mm : 9.00...12.00 : 26.02.93 Edition Firing order : 1-5-3-6-2-4 : 02.93 Replaces : ISO-4113 Test oil : 0 403 466 130 Combination no. Phasing : 0-60-120-180-240-300 Phasing Injection pump Tolerance + - ° : 0.50 (0.75) Pump designation : PES6MW100/120RS1137-Time to cyl. no. : 1 : 0 413 406 180 EP type number Governor BASIC SETTING Governor design. : RSV550...1100MW2A335 rpm: 1100 1st speed : 0 420 085 206 Governer no. Rack travel in mm : 14.40...14.50 Customer-spec. information : CUMMINS Del.quantity cm3/: 15.2...15.4 Customer : 6 CTA 100 s: (14.9...15.7) Engine : 179.0 1st version kW cm3 : 0.4Spread : 2200 Rated speed 100 s: (0.7) TEST BENCH REQUIREMENTS rpm : 550.0 2nd speed Test oil Rack travel in mm: 6.8...7.1 inlet temp. "C : 38...42 Del.quantity cm3/: 2.2...2.6 100 s: (2.0...2.9) Overflow valve cm3 : 0.3Spread · 1 417 413 047 100 s: (0.5) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 : 1 688 901 101 rpm : 800 assembly Speed Rack travel in mm : 0.30...1.00 **Opening** : 207...210 pressure, bar Governor spring pre-tension Click setting x : 4.00 Orifice plate : 0,6 diameter min FULL LOAD DELIV. AT FULL LOAD STOP 1st version : 1 680 750 014 Test lines Speed rpm : 1100 Aneroid pressure h: 900 Outside diameter Del.quantity : 152.5...154.5 1000 : (149.5...157.5) x Wall thickness : 6.00x2.00x600 x Lenath mm : 4.00 cm3 Spread 1000 : (7.50) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. per values 1st version Control lever BEGINNING OF DELIVERY

C27

position degrees: 93...101

Setting point:

Speed rpm : 800 Rack travel in mm : 0.6

Testing:

1st rack travel in: 13.40

Speed rpm : 1165...1175

2nd rack travel in: 4.00

Speed rpm : 1240...1250

3rd rack travel in: 4.00

Speed rpm : 1240...1270

4th rack travel in: 1350

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 68...76

Setting point w/out bumper spring

Speed rpm : 550

Rack travel in mm: 6.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

Speed rpm : 550

Rack travel in mm : 6.40...6.60

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : 900

Rack travel mm : 14.40...14.50

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 11.50...11.70

2nd pressure hPa : 400

Rack travel in m: 12.30...12.40

3rd pressure hPa : 630

Rack travel in m: 13.80...14.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/: 100.0...102.0

1000 s: (98.0...104.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.40

Speed rpm : 1165...1175

STARTING FUEL DELIVERY

Speed rpm: 100

Del.quantity cm3/: 130.0...150.0

1000 s: (127.0...153.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 550

Rack travel in mm : 6.80...7.10 Del.quantity cm3/ : 22.5...26.5

1000 s: (20.0...29.0)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

: CUM #3925266

Start-of-delivery mark 9° cam angle after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.60...3.70 : (3.55...3.75) Note remarks Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Test sheet : MB Edition : 05.03.93 Replaces : 03.92 : ISO-4113 Test oil Phasing : 0-60-120-180-240-300 Combination no. : 0 403 476 113 Tolerance + - ° : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/720RS1131-1st speed rpm: 1200 EP type number : 0 413 406 165 Governor Rack travel in mm : 11.00...11.20 : RSV350...1200Mw0A342 Governor design. -10 Del.quantity cm3/: 7.6...7.8 Governer no. : 0 420 085 187 100 s: (7.4...8.0) Customer-spec. information Customer : MB-NFZ Spread cm3 : 0.3Engine : OM 366 LA 100 s: (0.6) 1st version kW : 132.0 2nd speed rpm : 350.0 Rack travel in mm : 5.5...6.0 Rated speed : 2400 Del.quantity cm3/: 0.9...1.3 TEST BENCH REQUIREMENTS 100 s: (0.6...1.5) cm3 : 0.3Spread Test oil 100 s: (0.5) inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Overflow valve Control-lever position : 1 419 992 198 Degree: -3 rpm : 800 Speed Inlet press., bar: 1.50 Rack travel in mm : 0.30...1.00 Test nozzle holder Governor spring pre-tension : 0 681 343 009 assembly Click setting x : 3.00Openina FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 172...175 1st version Speed rpm : 1200 Aneroid pressure h: 700 Test Lines : 1 680 750 089 Del.quantity : 76.0...78.0 Outside diameter 1000 : (74.0...80.0) x Wall thickness : 3.50 Spread cm3 : 8.00x2.50x600 x Length mm 1000 : (6.00)(A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values ____ Control lever position degrees: 96...104 BEGINNING OF DELIVERY

Setting point:

Rack travel in mm: 0.6

rpm : 800

Speed

Test pressure, bar: 30...32

Testing: 1st rack travel in: 10.10 rpm : 1240...1245 * Speed 2nd rack travel in: 4.00 : 1280...1293 Speed rom 3rd rack travel in: 4.00 Speed rpm : 1300...1330 4th rack travel in: 1450 : 0.30...1.70 Speed rpm 5th rack travel in: 1240...1255 rpm : 10.10Speed LOW IDLE 1 Setting point w/out bumper spring rom Rack travel in mm: 5.7 Testing: Speed : 100 rpm Minimum rack trave: 19.00 : 350 Speed rom Rack travel in mm : 5.50...6.00 Rack travel in mm: 2.00 Speed : 400...460 rom TORQUE CONTROL Dimension a mm : 1.10 Torque control curve - 1st version rpm : 1200 1st speed Rack travel in m: 11.00...11.20 2nd speed : 500 rom Rack travel in m: 12.20...12.40 3rd speed rpm : 500 Rack travel in m: 12.00...12.20 4th speed rpm : 1000 Rack travel in m: 11.40...11.60 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 mari Pressure hPa : -Rack travel mm : 10.10...10.30 Measurement Speed $1/\min : 500$ 1st pressure hPa : 200 Rack travel in m: 11.00...11.20 2nd pressure hPa : 300 Rack travel in m: 11.60...11.80 3rd pressure hPa : 700 Rack travel in m: 12.10...12.30 FUEL DELIVERY CHARACTERISTICS

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 100.0...110.0 1000 s: (97.0...113.0)

LOW IDLE

Remarks:

* Read off speed set under 1. Add 40...48 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Test hydr. locking device for starting with 800...1200 hPa air pressure.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.60...3.70 : (3.55...3.75) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Test sheet : MB Edition : 26.02.93 : 08.92 Replaces : ISO-4113 Test oil Phasina : 0-60-120-180-240-300 Combination no. : 0 403 476 114 Tolerance + - ° : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/720RS1131-1st speed rpm: 1080 EP type number : 0 413 406 165 Governor Rack travel in mm : 13.00...13.10 Governor design. : RSV550...1100MW0A325 Del.quantity cm3/: 10.3...10.5 Governer no. : 0 420 085 188 100 s: (10.1...10.7) Customer-spec. information Customer : MB-NFZ Spread cm3 : 0.3: 0M366LA Engine 100 s: (0.6) 1st version kW : 170.0 rpm : 550.0 2nd speed Rack travel in mm : 5.8...6.3 Del.quantity cm3/ : 1.0...1.4 Rated speed : 2200 100 s: (0.7...1.6) TEST BENCH REQUIREMENTS Spread cm3 : 0.3Test oil 100 s: (0.5) inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Overflow valve Control-Lever position : 1 419 992 198 Degree: -3 rpm : 800 Speed Inlet press., bar: 1.50 Rack travel in mm : 0.30...1.00 Test nozzle holder FULL LOAD DELIV. AT FULL LOAD STOP assembly : 0 681 343 009 1st version Openina rpm : 1080 Speed Del.quantity : 103.0...107.0) pressure, bar : 172...175 cm3 : 3.50 1000 : (6.00) Spread Test Lines : 1 680 750 089 Outside diameter RATED SPEED x Wall thickness x Length mm : 8.00x2.50x600 1st version Control Lever (A) Injection pump setting values position degrees: 82...90 Insp. values in parentheses Set equal delivery quant. Setting point: per values ___ rpm Speed Rack travel in mm: 0.6 BEGINNING OF DELIVERY Test pressure, bar: 30...32 Testing: 1st rack travel in: 12.0

rpm : 1120...1125 *

2nd rack travel in: 4.00

rom : 1145...1158

4th rack travel in: 1550

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 70...78

Setting point w/out bumper spring

: 550 rom Rack travel in mm: 6.0

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 550

Rack travel in mm : 5.80...6.30

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1080

Rack travel in m: 13.00...13.10

2nd speed rpm : 750

Rack travel in m: 13.90...14.00

3rd speed rpm : 925

Rack travel in m: 13.40...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/: 108.0...111.0

1000 s: (105.5...113.5)

Spread cm3 : 5.00

1000 s: (7.0)

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 100.0...110.0

1000 s: (97.0...113.0)

LOW IDLE

Speed rpm

Rack travel in mm : 5.80...6.30

Del.quantity cm3/: 10.0...14.0

1000 s: (7.5...16.5) cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Test hydr. locking device for starting

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with 500...1000 hPa air pressure.

* Read off speed set under 1. Add 25...33 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN Edition : 05.03.93 Replaces Test oil : ISO-4113 Combination no. : 0 403 486 105 Injection pump Pump designation : PES6MW100/321RS1231 EP type number : 0 413 406 225 Governor Governor design. : RSV300...1100Mw0A343 : 0 420 085 209 Governer no. Customer-spec. information Customer : 00826LE 522 Engine 1st version kW : 154.0 : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 003 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasina : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 12.00...12.10 Del.guantity cm3/: 14.2...14.4 100 s: (13.9...14.7) Spread cm3 : 0.4100 s: (0.7) 2nd speed rpm : 300.0 Rack travel in mm : 5.0...5.2 Del.quantity cm3/: 0.9...1.3 100 s: (0.6...1.5) Spread cm3 : 0.3100 s: (0.5) GUIDE SLEEVE POSITION Control-Lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 4.00FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1100 Speed Aneroid pressure h: 1000 : 142.0...144.0 Del.quantity 1000 : (139.0...147.0) : 4.00 Spread cm3 1000 : (7.50)RATED SPEED 1st version Control Lever position degrees: 90...98 Setting point: Speed rpm : 800 Rack travel in mm: 0.6

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 30...32

: 3.50...3.60

: (3.45...3.65)

Testing:

1st rack travel in: 11.00 rpm : 1150...1160 Speed 2nd rack travel in: 4.00 rpm : 1230...1260 4th rack travel in: 1350 Speed rpm : 0.30...1.70 LOW IDLE 1 Control lever position degrees: 64...72 Setting point w/out bumper spring rpm Rack travel in mm: 5.1 Testina: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 300 Rack travel in mm : 5.00...5.20 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 12.00...12.10 rpm : 800 2nd speed Rack travel in m: 12.30...12.40 3rd speed rpm : 600 Rack travel in m: 12.30...12.50 Aneroid/Altitude Compensation Test 1st version Settina Speed : 500 rom Pressure hPa : 1000 Rack travel mm : 12.00...12.10 Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 9.40...9.50 2nd pressure hPa : 150 Rack travel in m: 9.70...9.80 3rd pressure hPa : 600 Rack travel in m: 11.60...11.90 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 800 Speed Del.quantity cm3/: 144.0...148.0 1000 s: (141.0...151.0)

Spread cm3 : 6.001000 s: (9.0) Aneroid pressure h: 1000 Speed rpm : 600 Del.quantity cm3/ : 142.0...146.0 1000 s: (139.0...149.0) Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 75.0...77.0 1000 s: (73.0...79.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00 rpm : 1150...1160 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.00...5.20 Del.quantity cm3/: 9.0...13.0 1000 s: (6.5...15.5) cm3 : 3.50

Spread 1000 s: (5.50)

Remarks:

: MAN #3-7263

Start-of-delivery mark is at start of delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : SNF Phasing : 0-60-120-180-240-300 Edition : 26,02,93 Replaces Tolerance + - ° : 0.50 (0.75)Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 546 021 1st speed rpm: 1200 Injection pump Pump designation: PE6MW100/720RS1229 Rack travel in mm : 14.40...14.50 EP type number : 0 413 506 108 Governor Del.quantity cm3/: 15.1...15.3 Governor design.: RQV250...1200Mw93-3 Governer no. : 0 420 083 287 100 s: (14.8...15.6) Customer-spec. information Spread cm3 : 0.4Customer : SNF 100 s: (0.7) Engine : WD 612.95 2nd speed cpm : 250.01st version kW : 191.0 Rack travel in mm: 9.1...9.3 Del.quantity cm3/: 1.8...2.2 Rated speed : 2400 100 s: (1.5...2.4) TEST BENCH REQUIREMENTS Spread cm3 : 0.3100 s: (0.5) Test oil inlet temp. °C (B) Setting of injection pump : 38...42 with governor Overflow valve : 1 457 413 010 GUIDE SLEEVE TRAVEL rpm : 1250 1st speed : 8.20...8.60 Inlet press., bar: 1.50 travel mm rpm : 1050 2nd speed Test nozzle holder : 6.30...6.50 travel mm assembly : 0 681 343 009 3rd speed rpm : 500 travel mm : 2.70...3.30 Openina | : 250 4th speed rpm pressure, bar : 172...175 : 0.80...1.20 travel mm FULL LOAD DELIV. AT FULL LOAD STOP Test lines : 1 680 750 014 1st version Outside diameter Speed rpm : 1200 x Wall thickness Aneroid pressure h: 1200 : 6.00x2.00x600 x Length mm : 151.0...153.0 Del.quantity 1000 : (148.0...156.0) (A) Injection pump setting values cm3 : 4.00 Spread Insp. values in parentheses 1000 : (7.50) Set equal delivery quant. per values ____ RATED SPEED BEGINNING OF DELIVERY 1st version Test pressure, bar: 30...32 Control Lever position degrees: 108...116 Prestroke mm : 3.60...3.70 : (3.55...3.75) Rack travel in mm : 9.00...12.00 1st rack travel in: 13.60

D07

: 1240...1250 Speed יחסרו 2nd rack travel in: 4.00 Speed rpm : 1325...1355 4th rack travel in: 1400 rom : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 74...82 Setting point w/out bumper spring rpm : 250 Rack travel in mm: 9.2 Testing: Speed : 150 rpm Minimum rack trave: 10.00 rpm : 250 Rack travel in mm : 9.10...9.30 Aneroid/Altitude Compensator Test 1st version Settina : 500 Speed rom hPa : 1200 Pressure Rack travel mm : 14.40...14.50 Measurement Speed $1/\min : 500$ 1st pressure hPa : -Rack travel in m: 12.00...12.10 2nd pressure hPa : 600 Rack travel in m: 12.50...12.60 3rd pressure hPa : 800 Rack travel in m: 13.50...13.80 START CUT-OUT Speed 1/min: 180 (200) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed : 700 rpm Del.quantity cm3/: 157.0...161.0 1000 s: (154.0...164.0) cm3 : 6.00 Spread 1000 s: (9.0 Aneroid pressure h: -: 500 Speed rpm

Del.quantity cm3/: 98.0...100.0

1000 s: (96.0...102.0)

1st version 1mm rack travel less than full load rack tr: 13.60 rpm : 1240...1250 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 130.0...140.0 1000 s: (127.0...143.0) LOW IDLE Speed rpm Rack travel in mm : 9.10...9.30 Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD Edition : 21.09.92 Replaces Test oil : ISO-4113 Combination no. : 0 403 548 027AG Injection pump EP type number : 0 413 508 108 Governor Governer no. : 0 420 083 163 Customer-spec. information Customer : KHD Engine : F8L513 1st version kW : 163.0 Rated speed : 2300 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening | : 172...175 pressure, bar Test lines : 1 680 740 014 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm

Pump designation : PE8MW100/720LS1173 Governor design. : RQV300...1150MW99 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32 Prestroke mm : 3.10...3.20 : (3.05...3.25) Rack travel in mm : 9.00...12.00

: 1-8-7-2-6-5-Firing order Phasing : 0-45-90-135-180-225-270-315 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm : 1150 Rack travel in mm: 10.30...10.40 Del.quantity cm3/: 8.9...9.1 100 s: (8.7...9.3) Spread cm3 : 0.3100 s: (0.6) rpm : 300.02nd speed Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 1.1...1.5 100 s: (0.8...1.7) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1280 : 11.10...11.50 travel mm rom : 1190 2nd speed travel mm : 10.10...10.30 3rd speed : 400 rpm travel mm : 2.90...3.50 4th speed : 300 rpm : 2.20...2.60 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 1200 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1150 Speed : 89.0...91.0 Del.quantity 1000 : (87.0...93.0) : 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 45...53

Testing:

1st rack travel in: 9.30

rpm : 1190...1200 Speed

2nd rack travel in: 3.50

Speed rpm : 1275...1305

4th rack travel in: 1370

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 13...21

Setting point w/out bumper spring

rpm : 300 Rack travel in mm : 5.0

Testing:

Speed rpm : 100 Minimum rack trave: 6.50 : 300 rpm

Rack travel in mm : 4.90...5.10

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 10.30...10.40

2nd speed rpm : 650

Rack travel in m: 10.60...10.70

Rack travel in m: 10.50...10.60

START CUT-OUT

1/min : 220 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rom : 650

Del.quantity cm3/: 82.5...85.5 1000 s: (80.0...88.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 135.0...155.0 1000 s: (132.0...158.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 11.0...15.0 1000 s: (8.5...17.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

D10

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet

: KHD : 21.09.92 Edition

Replaces

Test oil

: ISO-4113

Combination no. : 0 403 548 032AA

Injection pump

Pump designation : PE8MW100/720LS1173

EP type number : 0 413 508 108

Governor

Governor design. : RQ300/1150MW61-2

Governer no. : 0 420 082 036

Customer-spec. information

Customer : KHD

: F8L513 Engine

1st version kW : 168.0

Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 08...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

: 172...175 pressure, bar

Test lines : 1 680 740 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values

Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke nm : 3.10...3.20

: (3.05...3.25)

Rack travel in mm : 9.00...12.00

: 1-8-7-2-6-5-Firing order

4- 3

Phasing : 0-45-90-135-180-225-

270-315

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 10.50...10.60

Del.quantity cm3/: 9.3...9.5

100 s: (9.1...9.7)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 4.9...5.1

Del.quantity cm3/: 1.1...1.5

100 s: (0.8...1.7)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1270 1st speed

travel mm : 3.60...9.00

2nd speed rpm : 1210

travel mm : 6.60...6.80

3rd speed rpm : 420

: 3.50...4.10 travel mm

4th speed rpm : 300

travel mm : 1.50...1.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: 107

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

: 93.0...95.0 Del.quantity

1000 : (91.0...97.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 26...34

Setting point:

Speed rpm : 600 Rack travel in mm: 20.0

Testina:

1st rack travel in: 9.50

Speed rpm : 1190...1205 2nd rack travel in: 3.50

rpm : 1240...1270 Speed

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 8...16

Setting point w/out bumper spring

rpm : 300 Rack travel in mm : 5.0

Testing:

: 100 Speed rpm Minimum rack trave: 6.50

: 300 Speed rom

Rack travel in mm : 4.90...5.10

TORQUE CONTROL

Torque control curve - 1st version

rom : 1150 1st speed

Rack travel in m: 10.50...10.60

2nd speed rpm : 650

Rack travel in m: 10.80...10.90

3rd speed rpm : 1000

Rack travei in m: 10.70...10.80

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650 Del.quantity cm3/: 91.5...94.5 1000 s: (89.0...97.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.50

rpm : 1190...1205 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 135.0...155.0

1000 s: (132.0...158.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 11.0...15.0 1000 s: (8.5...17.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

D12

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD Edition : 21.09.92 Replaces Test oil : ISO-4113 Combination no. : 0 403 548 032AB Injection pump Pump designation : PE8MW100/720LS1173 EP type number : 0 413 508 108 Governor Governor design. : RQ300/1150MW61-2 : 0 420 082 036 Governer no. Customer-spec. information Customer : KHD : F8L513 Engine 1st version kW : 174.0 Rated speed : 2300 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly **Opening** pressure, bar : 172...175 Test lines : 1 680 740 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

Firing order : 1-8-7-2-6-5-4- 3 Phasing : 0-45-90-135-180-225-270-315 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1150 Rack travel in mm: 10.80...10.90 Del.quantity cm3/: 9.7...9.9 100 s: (9.5...10.1) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 300.0 Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 1.1...1.5 100 s: (0.8...1.7) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1270 travel nm : 8.60...9.00 2nd speed rpm : 1210 travel mm : 6.60...6.80 3rd speed rpm : 420 travel mm : 3.50...4.10 4th speed rpm : 300 travel mm : 1.50...1.90 GUIDE SLEEVE POSITION Control-lever position Degree: 107 rpm : 600 Speed Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1150 Speed : 97.0...99.0 Del.quantity 1000 : (95.0...101.0) : 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 30...32

Rack travel in mm : 9.00...12.00

: 3.10...3.20 : (3.05...3.25) 1st version Control lever

position degrees: 26...34

Setting point:

Speed rpm : 600 Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.80

rpm : 1190...1205 Speed

2nd rack travel in: 3.50

rpm : 1245...1275 Speed

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 8...16

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 5.0

Testing:

Speed rpm : 100 Minimum rack trave: 6.50

rpm : 300 Speed

Rack travel in mm : 4.90...5.10

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1150 1st speed

Rack travel in m: 10.80...10.90

2nd speed rpm : 650

Rack travel in m: 11.10...11.20 3rd speed rpm : 1000

Rack travel in m: 11.00...11.10

START CUT-OUT

1/min: 220 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650 Del.quantity cm3/ : 96.5...99.5 1000 s: (94.0...102.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80

rpm : 1190...1205 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 135.0...155.0 1000 s: (132.0...158.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 11.0...15.0

1000 s: (8.5...17.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

D14

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD Edition : 21.09.92 Replaces Test oil : ISO-4113 Combination no. : 0 403 548 032AC Injection pump Pump designation : PE8MW100/720LS1173 EP type number : 0 413 508 108 Governor Governor design. : RQ300/1150Mw61-2 : 0 420 082 036 Governer no. Customer-spec. information Customer : KHD Engine : F8L513 1st version kW : 178.0 Rated speed : 2300 TEST BENCH REQUIREMENTS Test oil : 38...42 inlet temp. °C Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Openina pressure, bar : 172...175 Test lines : 1 680 740 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values _ BEGINNING OF DELIVERY Test pressure, bar: 30...32 Prestroke mm : 3.10...3.20 : (3.05...3.25) Rack travel in mm : 9.00...12.00 D15

Firing order : 1- 8- 7- 2- 6- 5-4- 3 Phasing : 0-45-90-135-180-225-270-315 Tolerance + - ° : 0.50 (0.75) BASIC SETTING rpm: 1150 1st speed Rack travel in mm : 11.00...11.10 Del.quantity cm3/: 9.9...10.1 100 s: (9.7...10.3) cm3 : 0.3Spread 100 s: (0.6) rpm : 300.02nd speed Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 1.1...1.5 100 s: (0.8...1.7) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1270 : 8.60...9.00 travel mm 2nd speed rpm : 1210 travel mm : 6.60...6.80 3rd speed rpm : 420 : 3.50...4.10 travel mm 4th speed rpm : 300 travel mm : 1.50...1.90 GUIDE SLEEVE POSITION Control-lever position Degree: 107 Speed rpm : 600 Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1150 Speed : 99.0...101.0 Del.quantity 1000 : (97.0...103.0)

: 3.50

: (6.00)

cm3 1000

Spread

RATED SPEED

1st version Control Lever

position degrees: 26...34

Setting point:

Speed rpm : 600 Rack travel in mm: 20.0

Testing:

1st rack travel in: 10.00

rpm : 1190...1205

2nd rack travel in: 3.50

rpm : 1245...1275 Speed

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 8...16

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 5.0

Testing:

Speed rpm : 100 Minimum rack trave: 6.50 rpm : 300

Rack travel in mm : 4.90...5.10

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 11.00...11.10

2nd speed rpm : 650

Rack travel in m: 11.30...11.40

3rd speed rpm : 1000

Rack travel in m: 11.20...11.30

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/: 98.5...101.5

1000 s: (96.0...104.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

Speed rpm : 1190...1205

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (132.0...158.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 11.0...15.0 1000 s: (8.5...17.5) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

016

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM

Edition : 15.06.93

Replaces : -

Test oil : ISO-4113

Combination no. : 9 400 083 423

Injection pump

Pump designation : PES3A80D320/3RS1264

EP type number : 9 400 083 053

Governor

Governor design. : RSV350...900A7C627R

Governer no. : 9 420 083 264

Customer-spec. information

Customer : MWM

Engine : 0225-3

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 003

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30

: (2.15...2.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 3

Phasing : 0-120-240

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack tray. m: 9.00...12.00

& maximum rack tra: 21.00

Difference * CS : 4.00...5.00

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 10.20...10.30

Del.quantity cm3/ : 5.1...5.2

100 s: (5.0...5.4)

Spread cm3 : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm: 7.3...7.5

Del.quantity cm3/: 0.8...1.1

100 s: (0.6...1.3)

Spread cm3 : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 900

Del.quantity : 51.5...52.5

1000 : (50.0...54.0)

Spread cm3 : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 107...115

Testing:

1st rack travel in: 9.20

rpm : 940...945 Speed 2nd rack travel in: 4.00 Speed rpm : 965...978 4th rack travel in: 1100 rpm : 0.30...1.70 Speed LOW IDLE 1 Control Lever position degrees: 75...83 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 Speed rpm : 420...480 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 10.20...10.30 2nd speed rpm : 500 Rack travel in m: 10.20...10.40 5th speed rpm : 400 Rack travel in m: 10.90...11.50 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.20 rpm : 940...945 Speed STARTING FUEL DELIVERY Speed : 100 rpm Rack travel in mm : 19.00...21.00 LOW IDLE : 350 rom Rack travel in mm : 5.90...6.10 Remarks:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet Edition

: MWM : 15.06.93

Replaces

Test oil

: ISO-4113

Combination no. : 9 400 083 427

Injection pump

Pump designation : PES4A80D320/3RS1265

EP type number

: 9 400 083 055

Governor

Governer no.

Governor design. : RSV350...900A7C627R

: 9 420 083 264

Customer-spec. information Customer

: MWM

Engine

: D225-4

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening |

pressure, bar

: 172...175

Test lines

: 1 680 750 003

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X608

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.20...2.30

: (2.15...2.35)

Rack travel in mm : 9.00...12.00

Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed

rpm : 900

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 5.1...5.2

100 s: (5.0...5.4)

Spread

Spread

cm3 : 0.2

100 s: (0.4)

2nd speed

rpm : 350.0

Rack travel in mm: 7.3...7.5 Deliquaritity cm3/: 0.8...1.1

100 s: (0.6...1.3)

cm3 : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 6.00

1st version

Speed

rpm : 900

FULL LOAD DELIV. AT FULL LOAD STOP

Del.quantity

: 51.5...52.5

1000 : (50.0...54.0)

Spread

: 2.50 cm31000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 107...115

Testing:

1st rack travel in: 9.20

D19

rpm : 940...945 Speed 2nd rack travel in: 4.00 Speed rpm: 965...978 4th rack travel in: 1100 Speed rpm : 0.30...1.70LOW IDLE 1 Control lever position degrees: 75...83 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 350 Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 Speed rpm : 420...480 TORQUE CONTROL Torque control curve - 1st version rpm : 900 1st speed Rack travel in m: 10.20...10.30 2nd speed rpm : 500 Rack travel in m: 10.20...10.40 5th speed rpm : 400 Rack travel in m: 10.90...11.50 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.20 rpm : 940...945 Speed STARTING FUEL DELIVERY Speed rpm : 100 Rack travel in mm : 19.00...21.00 LOW IDLE rom : 350 Rack travel in mm : 5.90...6.10 Remarks: **APPLICATION** Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet

: MWM

Edition

: 15.06.93

Replaces Test oil

: ISO-4113

Combination no.

: 9 400 083 429

Injection pump

Pump designation : PES6A80D320/3RS1261

EP type number

: 9 400 083 057

Governor

Governor design.: RSV350...900A7c627R

Governer no.

: 9 420 083 264

Customer-spec. information Customer

: MWM

: D225-6

Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 592 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test Lines

: 1 680 750 003

Outside diameter

x Wall thickness x Length mm

: 6.00X2.00X600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.20...2.30

: (2.15...2.35)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4

Firing order

Phasing

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

Tolerance + - °

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference * CS : 4.00...5.00

: 0.50 (0.75)

: 0-60-120-180-240-300

BASIC SETTING

1st speed

rpm: 900

Rack travel in mm: 10.20...10.30

Del.quantity cm3/: 5.1...5.2

100 s: (5.0...5.4)

Spread

Spread

Speed

cm3 : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm: 7.3...7.5 Del.quantity cm3/: 0.8...1.1

100 s: (0.6...1.3)

cm3 : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 900

: 51.5...52.5

Del.quantity

1000 : (50.0...54.0)

Spread

: 2.50 cm3

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 107...115

Testing:

1st rack travel in: 9.20

rpm : 940...945 Speed 2nd rack travel in: 4.00 Speed rpm : 965...978 4th rack travel in: 1100 Speed rpm : 0.30...1.70 LOW IDLE 1 Control lever position degrees: 75...83 Setting point w/out bumper spring Speed rpm: 350 Rack travel in mm : 5.5 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 Speed rpm : 420...480 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 10.20...10.30 2nd speed rpm : 500 Rack travel in m: 10.20...10.40 5th speed rpm : 400 Rack travel in m: 10.90...11.50 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.20 rpm : 940...945 Speed STARTING FUEL DELIVERY

Speed rpm: 100

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm: 350

Rack travel in mm : 5.90...6.10

Remarks:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM

Edition : 17.06.93 Replaces : 13.03.92 Test oil : ISO-4113

Combination no. : 9 400 083 449DD

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1100A2C2209

: 9 420 083 201 Governer no.

Cust. part no. : 3354913

Customer-spec. information Customer : CUMMINS

Engine : 6 CT 8.3 L

1st version kW : 129.1 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm: 1175

Rack travel in mm : 10.10...10.20

Del.quantity cm3/ : 8.7...8.9

100 s: (8.5...9.1)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.0 2nd speed

Rack travel in mm : 5.6...5.8

Del.quantity cm3/ : 1.6...2.0 100 s: (1.4...2.3)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1175

Del.quantity : 87.5...89.5

1000 : (85.5...91.5)

: 3.50 Spread Cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 87...95

Testing:

1st rack travel in: 9.10

Speed rpm : 1215...1225

2nd rack travel in: 4.00

rpm : 1245...1275 Speed

4th rack travel in: 1400

Speed rom : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 62...70

Setting point w/out bumper spring

Speed rpm: 400

Rack travel in mm : 5.2

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

rpm : 400

Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00

Speed rpm : 570...630

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1175
Rack travel in m: 10.10...10.20
2nd speed rpm : 500
Rack travel in m: 11.30...11.50

4th speed rpm : 800

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500

Del.quantity cm3/: 90.5...93.5

1000 s: (88.0...96.0)

Speed rpm : 800 Del.quantity cm3/: 92.5...95.5 1000 s: (90.0...98.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10

rpm : 1215...1225 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

D24

Del.quantity cm3/: 135.0...149.0

1000 s: (132.0...152.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.60...5.80

Del.quantity cm3/: 16.5...20.5 1000 s: (14.0...23.0)

Spread

cm3 : 3.50 1000 s: (5.50)

Remarks:

: VERSAO 33

Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

Note remarks

Test sheet : CLM 5,9 x Edition : 15.06.93 Replaces : 01.93 Test oil : ISO-4113

Combination no. : 9 400 083 459

Injection pump

Pump designation : PES6A95D12ORS2822 EP type number : 9 400 084 029

Governor

Governor design. : RQV350...1250AB1235

-2R

Governer no. : 9 420 080 311

Customer—spec. information Customer : CUMMINS

Engine : 6 BT

1st version kW : 119.3 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _____

BEGINNING OF DELIVERY
Test pressure bas: 25

Test pressure, bar: 25...27

Prestroke mm : 2.75...2.85 : (2.70...2.90)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $\div - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 12.70...12.80

Del.quantity cm3/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm3: 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.0...5.2 Del.quantity cm3/ : 0.6...1.0

100 s: (0.4...1.2)

Spread cm3: 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1300

travel mm : 6.80...6.90

2nd speed rpm : 350

travel mm : 1.20...1.70

3rd speed rpm: 700

travel mm : 4.00...4.50

4th speed rpm : 1550

travel mm : 8.30...8.80

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 1530

Rack travel in mm: 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 600 Del.quantity : 86.0...88.0 1000 : (84.0...90.0) : 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 107...115

Testing:

1st rack travel in: 11.70 rpm : 1310...1320 Speed 2nd rack travel in: 4.00

: 1545...1575 Speed rpm

4th rack travel in: 1750

Speed rpm : 0.00...1.00

LOW IDLE 1 control lever

position degrees: 63...71

Testina:

Speed : 100 man Minimum rack trave: 7.00 : 350 rpm

Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

Speed rpm : 475...575

Aneroid/Altitude Compensator Test

1st version Settina

Speed : 500 rpm Pressure hPa : 600

Rack travel mm : 12.70...12.80

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 11.60...11.90

2nd pressure hPa : 320

Rack travel in m: 11.70...11.80

3rd pressure hPa : 410

Rack travel in m: 12.30...12.50

START CUT-OUT

1/min: 270 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 600

Speed rpm : 700 Del.quantity cm3/ : 80.0...83.0 1000 s: (77.5...85.5)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 64.0...67.0

1000 s: (62.0...69.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.70

rpm : 1310...1320 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Dei.quantity cm3/ : 115.0...135.0 1000 s: (110.0...140.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm: 5.00...5.20 Del.quantity cm3/: 6.0...10.0 1000 s: (4.0...12.0)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

: C.D.C. # 3355394

Start-of-delivery mark 9.5° cam angle after start of delivery cyl. 1

Note remarks

: MWM Test sheet

: 15.06.93 Edition

Replaces

Test oil : ISO-4113

Combination no. : 9 400 085 223

Injection pump

Pump designation : PES3A80D320RS1281 EP type number : 9 400 083 054

Governor

Governor design. : RSV350...1400A2c2129

-3R

: 9 420 083 265 Governer no.

Customer-spec, information Customer : MWM

: D 229-3 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test Lines : 1 680 750 003

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30 : (2.15...2.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 3

: 0-120-240 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference * CS : 4.90...5.00

BASIC SETTING

rpm: 1400 1st speed

Rack travel in mm : 9.90...10.00

Del.guantity cm3/ : 5.4...5.5

100 s: (5.3...5.7)

cm3 : 0.2Spread

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm: 6.9...7.1 Del.quantity cm3/: 0.6...0.9

100 s: (0.4...1.1)

cm3 : 0.4Spread

100 s: (0.6)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 5.50

1st version

Speed rpm : 1400

: 54.5...55.5 Del. quantity

FULL LOAD DELIV. AT FULL LOAD STOP

1000 : (53.0...57.0)

: 2.50 Spread cm3

1000 : (4.00)

RATED SPEED

1st version

Control Lever

position degrees: 108...116

Testing:

1st rack travel in: 8.90 Speed rpm : 1440...14502nd rack travel in: 4.00 Speed rpm : 1495...1525 4th rack travel in: 1700 Speed rom : 0.30...1.70LOW IDLE 1 Control lever position degrees: 74...82 Setting point w/out bumper spring Rack travel in mm : 6.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm: 6.90...7.10 Rack travel in mm : 2.00 Speed rpm : 640...700 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1400 Rack travel in m: 9.90...10.00 2nd speed rpm : 500 Rack travel in m: 10.70...10.80
3rd speed rpm: 700 Rack travel in m: 10.60...10.80 4th speed rpm : 1100 Rack travel in m: 10.20...10.50 FUEL DELIVERY CHARACTERISTICS 1st version Speed Speed rpm : 500 Del.quantity cm3/ : 48.0...51.0 1000 s: (46.5...52.5) rpm : 700 Del.quantity cm3/: 50.5...53.5 1000 s: (49.0...55.0) Speed rpm : 1100 Del.quantity cm3/: 54.5...57.5 1000 s: (53.0...59.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.90 Speed rpm : 1440...1450 STARTING FUEL DELIVERY Speed rpm : 100

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.90...7.10 Del.quantity cm3/ : 6.5...9.5 1000 s: (4.5...11.5)

Spread cm3 : 4.00

1000 s: (6.00)

Remarks:

028

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks Test sheet : MWM Edition : 15.06.93 Phasing : 0-60-120-180-240-300 Replaces Test oil : ISO-4113 Tolerance + - " : 0.50 (0.75) Combination no. : 9 400 085 239 Time to cyl. no. : 1 Injection pump **BEGINNING OF DELIVERY DIFFERENCE** Pump designation : PES6A90D320RS2701 : 9 400 083 094 EP type number betw. rack trav. m: 9.00...12.00 Governor & maximum rack tra: 21.00 Governor design. : RSV350...1150A2C2097 Difference ° CS : 4.00...5.00 -1R : 9 420 083 267 Governer no. BASIC SETTING Customer-spec. information 1st speed rpm: 1150 Customer : MWM Rack travel in mm : 10.80...10.90 Engine : TD229-6 Del.quantity cm3/: 8.1...8.2 1st version kW : 106.7 : 2300 Rated speed 100 s: (7.9...8.4) TEST BENCH REQUIREMENTS Spread cm3 : 0.3Test oil 100 s: (0.7) inlet temp. °C : 38...42 2nd speed rpm : 350.0Overflow valve Rack travel in mm: 5.3...5.5 : 1 419 992 198 Del.quantity cm3/: 0.8...1.2 100 s: (0.6...1.4) cm3 : 0.4Inlet press., bar: 1.50 Spread 100 s: (0.7) Test nozzle holder assembly : 0 681 343 009 GUIDE SLEEVE POSITION Control-lever position Opening Degree: -3 : 172...175 pressure, bar rpm : 800 Speed Rack travel in mm : 0.30...1.00 Test Lines : 1 680 750 003 Governor spring pre-tension Click setting x : 4.00Outside diameter x Wall thickness FULL LOAD DELIV. AT FULL LOAD STOP x Length mm : 6.00x2.00x600 1st version (A) Injection pump setting values rpm : 1150 Speed : 81.0...82.0 Insp. values in parentheses Del.quantity Set equal delivery quant. 1000 : (79.0...84.0) per values ____ Spread : 3.00 cm3 1000 : (7.00) BEGINNING OF DELIVERY Test pressure, bar: 25...27 RATED SPEED Prestroke mm : 2.65...2.75 1st version

: (2.60...2.80)

Control lever position degrees: 93...101 Testing: 1st rack travel in: 9.80 rpm : 1190...1200 Speed 2nd rack travel in: 4.00 Speed rpm : 1240...1270 4th rack travel in: 1400 rpm : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 67...75 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 4.9 Testing: Speed rpm : 100 Minimum rack trave: 19.00 : 350 Speed rpm Rack travel in mm : 5.30...5.50 Rack travel in mm : 2.00 : 535...595 Speed rpm TORQUE CONTROL Torque control curve - 1st version rpm : 1150 1st speed Rack travel in m: 10.80...10.90 2nd speed rpm : 500 Rack travel in m: 11.20...11.30 3rd speed rpm : 700 Rack travel in m: 11.20...11.30 4th speed rpm : 950 Rack travel in m: 11.00...11.10 FUEL DELIVERY CHARACTERISTICS 1st version : 500 Speed rpm Del.quantity cm3/ : 74.0...77.0 1000 s: (72.0...79.0) Speed rpm : 700 Del.quantity cm3/ : 76.5...79.5 1000 s: (74.5...81.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.80 rpm : 1190...1200 Speed STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00
LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...5.50

Del.quantity cm3/: 8.0...12.0 1000 s: (6.0...14.0) Spread cm3 : 4.50 1000 s: (7.00)

Remarks: : VALMET APPLICATION

Tractor (tractor engines)

Note remarks

Test sheet : MWM

Edition : 15.06.93

Replaces

Test oil : ISO-4113

Combination no. : 9 400 G85 240

Injection pump

Pump designation : PES4A90D320RS2702 EP type number : 9 400 083 095

Governor

: RSV350...1150A2C2129 Governor design.

-4R

: 9 420 083 268 Governer no.

Customer-spec. information Customer : MM

: D 229-4 Engine

1st version kW : 75.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.65...2.75 Prestroke mm

: (2.60...2.80)

Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 9.00...9.10

Del.quantity cm3/: 6.3...6.4

100 s: (6.1...6.6)

cm3 : 0.3Spread

100 s: (0.7)

rpm : 350.0 2nd speed Rack travel in mm: 5.6...5.8

Del.quantity cm3/: 1.0...1.4

100 s: (0.8...1.6)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION Control-Lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 63.5...64.5

1000 : (61.5...66.5)

Spread cm3 : 3.00

1000 : (7.00)

RATED SPEED

1st version

Control lever position degrees: 95...103 Testina: 1st rack travel in: 8.00 Speed rpm : 1190...1200 2nd rack travel in: 4.00 rpm : 1230...1260 Speed 4th rack travel in: 1400 rpn : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 70...78 Setting point w/out bumper spring man Rack travel in mm: 5.2 Testina: : 100 Speed CDM Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00 Speed rpm : 560...620 TORQUE CONTROL Torque control curve - 1st version rpm : 1150 1st speed Rack travel in m: 9.00...9.10 rpm : 500 2nd speed Rack travel in m: 10.10...10.20 3rd speed rpm : 800 Rack travel in m: 9.70...9.90 4th speed rpm : 1000 Rack travel in m: 9.10...9.40 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 500 Del.quantity cm3/ : 60.5...63.5 1000 s: (58.5...65.5) Speed rpm : 800 Del.quantity cm3/: 65.5...68.5 1000 s: (63.5...70.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.00 rpm : 1190...1200 Speed

Speed rpm : 100
Rack travel in mm : 19.00...21.00
Remarks:

: VALMET

APPLICATION

Tractor (tractor engines)

E04

STARTING FUEL DELIVERY

Note remarks

Test sheet : MWM

Edition : 15.06.93

Replaces : ISO-4113 Test oil

: 9 400 085 243 Combination no.

Injection pump

Pump designation : PES4A80D32ORS1282-1

EP type number : 9 400 083 097

Governor

Governor design. : RS350/1500A2C2073-2R

: 9 420 083 269 Governer no.

Customer-spec. information Customer : MWM

Engine : D 229-4

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 003

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x608

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.65...2.75

: (2.60...2.80)

Rack travel in mm : 9.00...12.00

: 1-3-4-2 Firing order

: 0-90-180-270 Phasina

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm: 1500

Rack travel in mm : 9.20...9.30

Del.quantity cm3/ : 5.8...5.9

100 s: (5.6...6.0)

Spread cm3 : 0.2

100 s: (0.4)

rpm : 350.0 2nd speed

Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 0.7...1.0

100 s: (0.5...1.2)

Spread cm3 : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm: 0.30...1.00

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1500 Speed

Del.quantity : 58.0...59.0

1000 : (56.5...60.5)

: 2.50 Spread cm3

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 111...119

Testing:

1st rack travel in: 8.20

rpm : 1540...1550 Speed 2nd rack travel in: 4.00 Speed rpm : 1585...1615 4th rack travel in: 1750 rpm : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 73...81 Setting point wout bumper spring Speed rpm : 350 Rack travel in mm: 6.1 Testina: Speed rpm : 250 Minimum rack trave: 8.00 rpm : 350 Speed Rack travel in mm : 6.00...6.20 Rack travel in mm: 4.00 rpm : 370...430 Speed rpm : 600 Speed Maximum rack trave: 1.50 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1500 Rack travel in m: 9.20...9.30 rpm : 500 2nd speed Rack travel in m: 10.60...10.70 3rd speed rpm : 900 Rack travel in m: 10.20...10.40 4th speed rpm : 1200 Rack travel in m: 9.50...9.80 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 500 Speed rpm : 500 Del.quantity cm3/: 58.0...61.0 1000 s: (56.5...62.5) Speed rpm : 900 Del.quantity cm3/: 62.5...65.5 1000 s: (61.0...67.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.20 rpm : 1540...1550 Speed STARTING FUEL DELIVERY rpm : 100 Speed

Remarks:

Rack travel in mm : 19.00...21.00

Note remarks

Test sheet

: MWM

Edition

: 15.06.93

Replaces

Test oil

: ISO-4113

Combination no.

: 9 400 085 257

Injection pump

Pump designation : PES4A80D32ORS1282

EP type number

: 9 400 083 056

Governor

Governor design.

: RSV350...1100A2C2129

-6R

Governer no.

: 9 420 083 270

Customer-spec. information Customer

: MWM

Engine

: D 229-4

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test Lines

: 1 680 750 G03

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.20...2.30

: (2.15...2.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

E07

Phasing : 0-90-180-270

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 4.00...5.00

BASIC SETTING

Spread

1st speed rpm : 1100

Rack travel in mm : 8.70...8.80

Del.quantity cm3/: 4.8...4.9

100 s: (4.7...5.1)

cm3 : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.6 Del.quantity cm3/: 1.0...1.3

100 s: (0.8...1.5)

cm3 : 0.4 Spread

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

Speed

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

: 48.5...49.5 1000 : (47.0...51.0) Del.quantity

cm3 : 2.50 Spread

1000 : (4.00)

RATED SPEED

1st version

Control Lever

position degrees: 94...102

Testing:

1st rack travel in: 7.70 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1180...1210 Speed 4th rack travel in: 1300 Speed rpm : 0.30...1.70 LOW IDLE 1 Control lever position degrees: 72...80 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6.0 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm: 6.40...6.60 Rack travel in mm: 2.00 Speed rpm : 605...665 TORQUE CONTROL Torque control curve - 1st version rpm : 1106 1st speed Rack travel in m: 8.70...8 80 2nd speed rpm : 500 Rack travel in m: 10.00...10.10 4th speed rpm : 900 Rack travel in m: 9.10...9.40 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 500 Del.quantity cm3/: 49.5...52.5 1000 s: (48.0...54.0) Speed rpm : 900 Del.quantity cm3/: 48.5...51.5 1000 s: (47.0...53.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 7.70 rpm : 1140...1150 Speed STARTING FUEL DELIVERY rpm : 100 Speed Rack travel in mm : 19.00...21.00 Remarks:

APPLICATION

Tractor (tractor engines)

E08

Note remarks

: MWM Test sheet : 15.06.93 Edition

Replaces Test oil : ISO-4113

Combination no. : 9 400 085 268

Injection pump

Pump designation : PES4A90D320RS2702 EP type number : 9 400 083 095

Governor

Governor design. : RSV350...1150A2C2129

-7R

: 9 420 083 273 Governer no.

Customer-spec. information Customer : MWM

: TD 229 EC-4 Engine

1st version kW : 66.2 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

oressure, bar : 172...175

Test Lines : 1 680 750 003

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.65...2.75

: (2.60...2.80)

Rack travel in mm : 9.00...12.00

Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00 Difference ° CS : 3.00...4.00

BASIC SETTING

rpm: 1150 1st speed

Rack travel in mm : 10.30...10.40

Del.quantity cm3/: 7.7...7.8

100 s: (7.5...8.0)

Spread cm3 : 0.3

100 s: (0.7)

2nd speed rpm : 350.0

Rack travel in mm: 5.5...5.7 Del.quantity cm3/: 1.1...1.5

100 s: (0.9...1.7)

cm3 : 0.4Spread 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

77.5...78.5 1000 : (75.5...80.5) Del.quantity

: 3.00 Spread cm3

1000 : (7.00)

RATED SPEED

1st version

Control lever

position degrees: 93...101

Testina:

1st rack travel in: 9.30

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

rpm : 1240...1270 Speed

4th rack travel in: 1400

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 68...76

Setting point wout bumper spring

rpm : 350 Rack travel in mm: 5.1

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

rpm : 350

Rack travel in mm : 5.50...5.70

Rack travel in mm : 2.00

Speed rpm : 550...610

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150 Rack travel in m: 10.30...10.40

rpm : 500 2nd speed

Rack travel in m: 10.80...10.90

4th speed rpm : 700

Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500

Del.quantity cm3/: 69.5...72.5

1000 s: (67.5...74.5)

Speed rpm : 700 Del.quantity cm3/: 71.0...74.0

1000 s: (69.0...76.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

rpm : 100

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.50...5.70

Del.quantity cm3/: 11.0...15.0

1000 s: (9.0...17.0) cm3 : 4.50 Spread

1000 s: (7.00)

Remarks:

: VALMET

APPLICATION

Tractor (tractor engines)

E10

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB Edition : 15.06.93 Replaces Test oil : ISO-4113 Combination no. : 9 400 085 283 Injection pump Pump designation : PES6A90D410RS2293 EP type number : 0 410 896 031 Governor Governor design. : RSV350...1250A0C1150 -3L : 9 420 083 255 Governer no. Customer-spec. information Customer : MERCEDES-BENZ : OM 352-A Engine TEST BENCH REQUIREMENTS Test oil : 38...42 inlet temp. °C Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test Lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25 : (2.10...2.30)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-

Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 10.00...10.10

Del.quantity cm3/: 6.1...6.2

100 s: (5.9...6.5)

cm3 : 0.3Spread

100 s: (0.7)

2nd speed rpm : 350.0 Rack travel in mm : 7.1...7.3 Del.quantity cm3/: 1.0...1.4

100 s: (0.8...1.6)

cm3 : 0.4Spread 100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 61.5...62.5 1000 : (59.0...65.0)

Spread

cm3 : 3.00 1000 : (7.00)

RATED SPEED

1st version Control lever

position degrees: 100...108

Testing:

1st rack travel in: 9.00

rpm : 1290...1300 Speed

2nd rack travel in: 4.00

Speed rpm : 1335...1365

4th rack travel in: 1450

rpm : 0.30...1.70Speed

LOW IDLE 1

Control lever

position degrees: 72...80

Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 6.7

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

Speed rpm : 350
Rack travel in mm : 7.10...7.30
Rack travel in mm : 2.00
Speed rpm : 430...490

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 10.00...10.10

2nd speed rpm : 500

Rack travel in m: 10.00...10.20

5th speed rpm : 400

Rack travel in m: 11.20...11.80

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.00

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

Speed rpm : 200 Rack travel in mm : 14.20...14.80

:

Remarks:

Note remarks

Test sheet : MAM

Edition : 15.06.93

Replaces

Test oil : ISO-4113

Combination no. : 9 400 085 313

Injection pump

Pump designation: PES4A90D320RS2744 EP type number : 9 400 084 012

Governor

Governor design. : RSV350...1150A2c2129

-8R

: 9 420 083 277 Governer no.

Customer-spec, information Customer : MWM

Engine : TD 229 EC-4

1st version kW : 73.6 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.70...2.80 Prestroke mm

: (2.65...2.85)

Rack travel in mm : 9.00...12.00

: 1-3-4-2 Firing order

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 3.00...4.00

BASIC SETTING

rpm : 11501st speed

Rack travel in mm : 10.50...10.60

Del.quantity cm3/: 8.6...8.7

100 s: (8.4...8.9)

Spread cm3 : 0.3

100 s: (0.7)

rpm : 350.0 2nd speed

Rack travel in mm: 5.3...5.5 Del.quantity cm3/: 1.1...1.5

100 s: (0.9...1.7)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

Speed rpm : 800 Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

: 86.5...87.5 Del.quantity

1000 : (84.5...89.5)

Spread Cm3 : 3.00

1000 : (7.00)

RATED SPEED

1st version

Control lever

position degrees: 99...107

Testing:

1st rack travel in: 9.50

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

rpm : 1260...1290 Speed

4th rack travel in: 1450

rpm : 0.30...1.70Speed

LOW IDLE 1

Control lever

position degrees: 73...81

Setting point w/out bumper spring

Speed rom Rack travel in mm: 4.9

Testing:

Speed : 100 rpm Minimum rack trave: 19.00

rpm : 350 Speed

Rack travel in mm : 5.30...5.50

Rack travel in mm: 2.00

Speed rom : 555...615

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 10.50...10.60

2nd speed rpm : 500

Rack travel in m: 10.80...10.90

3rd speed rpm : 800

Rack travel in m: 10.80...10.90

4th speed rpm : 960

Rack travel in m: 10.60...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

: 500 Speed מכיר

Del.quantity cm3/: 80.0...83.0

1000 s: (78.0...85.0)

Speed rpm : 800 Del.quantity cm3/ : 84.5...87.5

1000 s: (82.5...89.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rom : 100

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 11.0...15.0

1000 s: (9.0...17.0)

cm3 : 4.50Spread

1000 s: (7.00)

Remarks:

: VALMET

APPLICATION

Tractor (tractor engines)

Note remarks

Test sheet

: MWM

Edition

: 15.06.93

Replaces

Test oil

: ISO-4113

Combination no.

: 9 400 085 314

Injection pump

Pump designation : PES6A90D320RS2718

EP type number

: 9 400 084 003

Governor

Governor design.

: RSV350...1150A2c2097

-2R

Governer no.

: 9 420 083 276

Customer-spec. information Customer

: MMM

Engine

: TD 229 EC-06

1st version kW

: 117.8

Rated speed

: 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Openina (

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.70...2.80

: (2.65...2.85)

Rack travel in mm : 9.00...12.00

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed

rpm: 1150

Rack travel in mm : 11.30...11.40

Del.quantity cm3/: 8.6...8.7

100 s: (8.4...8.9)

Spread

cm3 : 0.3

100 s: (0.7)

rpm : 350.0

2nd speed

Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.2...1.6 100 s: (1.0...1.8)

Spread

cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spread

Speed

rpm : 1150

Del.quantity

: 86.5...87.5 1000 : (84.5...89.5)

cm3

: 3.00

1000 : (7.00)

RATED SPEED

1st version

Control lever

position degrees: 95...103

Testing:

1st rack travel in: 10.30

Speed rpm : 1190...1200

2nd rack travel in: 4.00

rpm : 1255...1285 Speed

4th rack travel in: 1450

rpm : 0.30...1.70 Speed

LOW IDLE 1

Control lever

position degrees: 70...78

Setting point w/out bumper spring

rpm : 350

Rack travel in mm: 5.5

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 350 Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rom : 575...635

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 11.30...11.40

2nd speed

nd speed rpm : 500 Rack travel in m: 11.90...12.10

4th speed rpm : 800

Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500 Del.quantity cm3/: 84.0...87.0

1000 s: (32.0...89.0)

Speed : 800

Del.quantity cm3/: 85.5...88.5

1000 s: (83.5...90.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

: 100 rpm

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 12.5...16.5 1000 s: (10.5...18.5)

Spread cm3 : 4.50

1000 s: (7.00)

Remarks:

: VALMET

APPLICATION

Tractor (tractor engines)

Note remarks

Test sheet

: MB

Edition

: 15.06.93

Replaces

Test oil

: ISO-4113

Combination no.

: 9 400 085 327

Injection pump

Pump designation : PES6A95D410RS2772

EP type number

: 9 400 084 018

Governor

Governor design.

: RSV350...1250A0c1150

-4L

Governer no.

: 9 420 083 255

Customer-spec. information

Customer

: MERCEDES-BENZ

Engine

: OM 366 A

1st version kW

: 121.0

Rated speed

: 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Cpening

pressure, bar

: 172...175

Test lines

: 1 680 750 015

Outside diameter

x Wall thickness

x Length mm

: 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 3.20...3.30

: (3.15...3.35)

Rack travel in mm : 9.00...12.00

Firing order

: 1-5- 3- 6- 2- 4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1250

Rack travel in mm : 9.60...9.70

Del.quantity cm3/: 8.1...8.3

100 s: (7.9...8.5)

cm3 : 0.3

100 s: (0.8)

2nd speed rpm : 350.0

Rack travel in mm: 6.7...6.9

Del.quantity cm3/: 1.3...1.7 100 s: (1.0...2.0)

Spread

Speed

Spread

cm3 : 0.5

100 s: (0.9)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1250 Del.quantity

: 81.0...83.0

1000 : (79.0...85.0)

Spread

cm3 : 3.50 1000 : (8.00)

RATED SPEED

1st version

Control Lever

position degrees: 99...107

Testing:

Speed

1st rack travel in: 8.60

Speed

rpm : 1290...1300

2nd rack travel in: 4.00

rpm : 1325...1355

4th rack travel in: 1500

E17

Speed rpm : 0.30...1.70LOW IDLE 1 Control Lever position degrees: 71...79 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm: 6.3 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm: 350 Rack travel in mm: 6.70...6.90 Rack travel in mm: 2.00 Speed rpm : 420...480 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 9.60...9.70 nd speed rpm : 500 Rack travel in m: 9.60...9.80 2nd speed 5th speed rpm : 400 Rack travel in m: 10.80...11.40 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 800 Del.quantity cm3/ : 72.0...76.0 1000 s: (70.0...78.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.60 Speed rpm : 1290...1300 STARTING FUEL DELIVERY rpm : 100 Speed rpm: 1000 pel.quantity cm3/: 95.0...115.0 1000 s: (92.0...118.0) Speed Rack travel in mm : 13.90...14.10 LOW IDLE rpm : 350 Rack travel in mm : 6.70...6.90 Del.quantity cm3/: 13.0...17.0 1000 s: (10.0...20.0) cm3 : 5.50 Spread 1000 s: (9.00)

Remarks:

APPLICATION

Combine-harvester

E18

BOSCH INJ. PLMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks Test sheet : CUM Edition : 21,04,93 Phasing : 0-60-120-180-240-300 Replaces : ISO-4113 Test oil Tolerance + - ° : 0.50 (0.75) Combination no. : 9 400 085 354 Time to cyl. no. : 1 Injection pump BEGINNING OF DELIVERY DIFFERENCE Pump designation : PES6A100D320/3RS2691 betw. rack trav. m: 9.00...12.00 EP type number : 9 410 230 028 & maximum rack tra: 21.00 Governor Difference ° CS : 3.00...4.00 Governor design. : RQV350...1100AB1271R Governer no. : 9 420 080 343 BASIC SETTING Customer-spec. information 1st speed rpm: 1100 Customer : CUMMINS Rack travel in mm : 13.70...13.80 Engine : 6 CTA - 8.3 L Del.quantity cm3/: 12.9...13.1 1st version kW : 180.0 Rated speed : 2200 100 s: (12.7...13.3) TEST BENCH REQUIREMENTS Spread cm3 : 0.3Test oil 100 s: (0.6) inlet temp. °C : 38...42 rpm : 350.02nd speed Overflow valve Rack travel in mm : 5.9...6.1 : 1 419 992 198 Del.quantity cm3/: 1.3...1.7 100 s: (1.0...1.9) cm3 : 0.3Inlet press., bar: 1.50 Spread 100 s: (0.5) Test nozzle holder : 0 681 343 009 assembly (B) Setting of injection pump with governor Opening pressure, bar : 172...175 GUIDE SLEEVE TRAVEL rpm : 1100 1st speed : 7.70...7.90 travel mm Test Lines : 1 680 750 014 rpm : 350 2nd speed : 1.20...1.60 travel mm Outside diameter 3rd speed rpm : 600 x Wall thickness travel mm : 3.90...4.50 : 6.00x2.00x600 x Length mm rpm : 1150 4th speed travel mm : 8.00...8.60 (A) Injection pump setting values rpm : 1290 5th speed Insp. values in parentheses travel mm : 9.50...10.10 Set equal delivery quant. per values GUIDE SLEEVE POSITION Control-lever position BEGINNING OF DELIVERY Degree: -1 Test pressure, bar: 25...27 rpm : 1160 Speed Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

Prestroke mm

: 2.80...2.90 : (2.75...2.95)

1st version 1st pressure hPa : -Speed rpm : 1100 Rack travel in m: 11.30...11.50 Aneroid pressure h: 900 2nd pressure hPa : 400 Rack travel in m: 12.00...12.20 3rd pressure hPa : 580 Rack travel in m: 13.50...13.80 Del.quantity : 129.0...131.0 1000 : (127.0...133.0) cm3 : 3.50 Spread 1000 : (6.00) START CUT-OUT RATED SPEED 1/min : 270 (290) Speed 1st version Control Lever FUEL DELIVERY CHARACTERISTICS position degrees: 113...121 Testing: 1st version 1st rack travel in: 12.70 Speed rpm : 1140...1150 2nd rack travel in: 4.00 Aneroid pressure h: 900 Speed rpm : 750 Del.quantity cm3/: 142.5...145.5 rpm : 1265...1295 1000 s: (140.0...148.0) Speed 4th rack travel in: 1450 Aneroid pressure h: 900 Speed rpm : 0.00...1.00Speed : 850 rpm Del.quantity cm3/: 139.5...142.5 1000 s: (137.0...145.0) LOW IDLE 1 Control lever Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 82.5...84.5 1000 s: (80.5...86.5) position degrees: 66...74 Testing: Speed : 100 rom Minimum rack trave: 9.50 rom BREAKAWAY Rack travel in mm : 5.90...6.10 1st version CONSTANT REGULATION 1mm rack travel less than Speed rpm : 375...525 full load rack tr: 12.70 TORQUE CONTROL Speed rpm : 1140...1150 Dimension a mm : 0.80 Torque control curve - 1st version STARTING FUEL DELIVERY rpm : 1100 1st speed Pack travei in m: 13.70...13.80 2nd speed rpm : 750 Speed rpm : 100 Del.quantity cm3/ : 165.0...179.0 1000 s: (161.0...183.0) Rack travel in m: 14.50...14.60 d speed rpm : 850 Rack travel in m: 14.20...14.40 3rd speed Rack travel in mm : 19.00...21.00 : 950 4th speed rpm Rack travel in m: 13.90...14.10 LOW IDLE Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm3/ : 13.0...17.0
1000 s: (10.5...19.5) Aneroid/Altitude Compensator Test 1st version Spread cm3 : 3.50 Setting 1000 s: (5.50) Speed : 500 rpm Pressure hPa : 900 Remarks: Rack travel mm : 14.50...14.60 : C.D.C. # 3355290 Measurement Start-of-delivery mark 11° cam angle after start of delivery cyl. 1 1/min: 500 Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : CUM Phasing : 0-60-120-180-240-300 Edition : 21.04.93 Replaces Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Test oil : ISO-4113 Time to cyl. no. : 1 Combination no. : 9 400 085 355 BEGINNING OF DELIVERY DIFFERENCE Injection pump Pump designation : PES6A100D120RS2841 betw. rack trav. m: 9.00...12.00 & maximum rack tra: 21.00 Difference ° CS : 3.00...4.00 EP type number : 9 400 084 033 Governor Governor design. : RQV350...1400AB1272R : 9 420 080 344 Governer no. BASIC SETTING Customer-spec. information 1st speed rom: 1400 Customer : CUMMINS Rack travel in mm : 8.80...8.90 Engine : 6 BT 140 Del.quantity cm3/: 8.0...8.2 1st version kW : 105.0 Rated speed : 2800 100 s: (7.8...8.4) TEST BENCH REQUIREMENTS Spread cm3 : 0.3Test oil 100 s: (0.6) inlet temp. °C : 38...42 2nd speed rpm : 350.0 Overflow valve Rack travel in mm : 4.8...5.0 Del.quantity cm3/: 0.5...0.9 100 s: (0.3...1.1) : 1 419 992 198 Inlet press., bar: 1.50 cm3 : 0.3Spread 100 s: (0.5) Test nozzle holder assembly : 0 681 343 009 (B) Setting of injection pump with governor Opening. pressure, bar : 172...175 GUIDE SLEEVE TRAVEL rpm : 1400 1st speed : 6.40...6.60 travel mm Test lines : 1 680 750 014 2nd speed rpm : 350 : 1.70...2.20 travel mm Outside diameter 3rd speed rpm : 600 x Wall thickness : 3.70...4.20 travel mm x Length mm : 6.00X2.00X600 4th speed rpm : 1000 : 4.70...5.20 travel mm (A) Injection pump setting values 1650 5th speed rpm Insp. values in parentheses : 7.50...8.00 travel mm Set equal delivery quant. per values FULL LOAD DELIV. AT FULL LOAD STOP BEGINNING OF DELIVERY 1st version Test pressure, bar: 25...27 Speed rpm : 1400 : 80.0...82.0 Del.quantity : 2.85...2.95 1000 : (78.0...84.0) Prestroke mm : 3.50 : (2.80...3.00) Spread cm3 Rack travel in mm : 9.00...12.00 1000 : (6.00)

RATED SPEED

1st version Control Lever

position degrees: 102...110

Testing:

1st rack travel in: 7.80

Speed rpm : 1465...1480

2nd rack travel in: 4.00

rpm : 1620...1650 Speed

LOW IDLE 1

Control Lever

position degrees: 67...75

Testing:

Speed rpm : 100 Minimum rack trave: 9.00 rpm : 350 Speed

Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

rpm : 350...550 Speed

START CUT-OUT

1/min: 270 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del.quantity cm3/: 81.5...84.5

1000 s: (79.0...87.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.80

Speed rpm : 1465...1480

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 166.0...180.0 1000 s: (163.0...183.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

: 350 rpm

Rack travel in mm : 4.80...5.00

Del.quantity cm3/: 5.0...9.0 1000 s: (3.0...11.0)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

: C.D.C # 3355313

Start-of-delivery mark 9.5° cam angle

after start of delivery cyl. 1

E23

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB Edition : 15.06.93 Replaces Test oil : ISO-4113 Combination no. : 9 400 085 360 Injection pump Pump designation : PES4A95D410RS2843 EP type number : 9 400 084 034 Governor Governor design. : RQV300...1400AB1273L : 9 420 080 346 Governer no. Customer-spec, information Customer : MERCEDES-BENZ Engine : OM 364 1st version kW : 66.0 Rated speed : 2800 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly **Opening** pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

Firing order : 1-3-4-2 Phasing : 0-90-180-270 Tolerance + - ° : 0.50 (0.75) BASIC SETTING rpm: 1400 1st speed Rack travel in mm : 9.70...9.80 Del.quantity cm3/: 6.9...7.1 100 s: (6.7...7.3) Spread cm3 : 0.3100 s: (0.8) 2nd speed rpm : 300.0Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 0.7...1.1 100 s: (0.5...1.4) cm3 : 0.5Spread 100 s: (0.9) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1400 : 8.10...8.30 travel mm rpm : 300 2nd speed : 0.80...1.30 travel mm 3rd speed rpm : 700 travel mm : 3.90...4.40 4th speed rpm : 1100: 5.80...6.30 travel mm rpm : 1550 5th speed : 9.30...9.80 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1445 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1400 Speed : 69.5...71.5 Del.quantity 1000 : (67.5...73.5) : 3.50 Spread cm3 1000 : (8.00)

RATED SPEED

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 3.20...3.30

: (3.15...3.35)

1st version Control lever

position degrees: 108...116

Testina:

1st rack travel in: 8.70

Speed rpm : 1445...1455 2nd rack travel in: 4.00

Speed rpm : 1520...1550 4th rack travel in: 1680

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 66...74

Testing:

Speed rpm : 100 Minimum rack trave: 8.00

rpm : 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

rpm : 450...550 Speed

START CUT-OUT

1/min: 250 (270) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700 Del.quantity cm3/: 59.0...63.0

1000 s: (57.0...65.0)

cm3 : 5.00 1000 s: (8.00) Spread

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.70

rpm : 1445...1455 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 81.0...96.0 1000 s: (78.5...98.5)

Rack travel in mm : 13.80...14.00

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : SCA 11,1 i Edition : 21.04.93 Replaces : 10.90 Test oil : ISO-4113 Combination no. : 9 400 087 424 Injection pump Pump designation : PE6P120A720RS7020 EP type number : 0 412 626 828 Governor Governor design. : RQV200...1000PA539-8 : 0 421 813 635 Governer no. Customer-spec. information Customer : SAAB-SCANIA Engine : DS 11 34

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test rozzle holder

assembly : 1 688 901 019

Openina

pressure, bar : 207...210

Orifice plate

diameter mm 3.0 :

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10 : (4.95...5.15) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 12.90...13.00

Del.quantity cm3/: 20.8...21.0

100 s: (20.5...21.3)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 225.0 Rack travel in mm: 4.6...5.0 Del.quantity cm3/: 1.8...2.2

100 s: (-) Spread cm3 : 0.3100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL 1st speed rpm : 225

travel mm : 1.20...1.60

2nd speed rpm : 350

travel mm : 2.40...3.00

3rd speed rpm : 650

travel mm : 4.50...5.10 4th speed : 1045 rpm

travel mm : 8.40...8.60

rpm : 1150 5th speed

travel mm : 9.80...10.20

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1050

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700 Aneroid pressure h: 900

Del.quantity : 200.0...213.0)

Spread

: 6.00 cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 113...121

Testing:

1st rack travel in: 11.90

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

rpm : 1135...1165 Speed

4th rack travel in: 1250

rpm : 0.00...1.00Speed

LOW IDLE 1

Control Lever

position degrees: 61...69

Testina:

Speed : 125 rpm

Minimum rack trave: 5.80

: 225 Speed rom

Rack travel in mm : 4.60...4.80

Rack travel in mm: 2.00

rpm : 340...400 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed man

hPa : 900 Pressure

: 12.90...13.00 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.50...10.90

2nd pressure hPa : 520

Rack travel in m: 12.30...12.40

3rd pressure hPa : 320

Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 1000 Speed

Del.quantity cm3/: 198.0...206.0

1000 s: (196.0...208.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 151.0...155.0

1000 s: (149.0...157.0)

BREAKAWAY

ist version

1mm rack travel less than

full load rack tr: 11.90

Speed rpm : 1040...1050

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 275.9...325.0 1000 s: (-)

Rack travel in mm : 20.00...21.00

LOW IDLE

rpm : 225 Speed

Rack travel in mm : 4.60...4.80

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 nm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders

to 2.9...3.1 mm.

Start-of-delivery setting with ROBO

diaphragm.

Note remarks

Test sheet : FOR 7,8 o : 15.06.93 Edition : 10.90 Replaces Test oil : ISO-4113

Combination no. : 9 400 087 444

Injection pump

Pump designation : PES6P110A720RS3268 EP type number : 9 400 087 073

Governor

Governor design. : RSV650...1250P8A530

: 9 420 082 327 Governer no.

Customer-spec. information Customer : FNH-IVECO

Engine : 7.8 1

1st version kW : 190.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 9 401 087 403

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.25...4.35 : (4.20...4.40)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 16.2...16.4

100 s: (16.0...16.6)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 650.02nd speed Rack travel in mm: 5.2...5.4 Del.quantity cm3/: 2.2...2.6

100 s: (2.0...2.9)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm : 1200Aneroid pressure h: 1000

Del.quantity : 102.0...166.0)

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Testing:

1st rack travel in: 10.10

rpm : 1260...1270 Speed

2nd rack travel in: 4.00

rpm : 1295...1315 Speed

3rd rack travel in: 4.00

rpm : 1310...1330 Speed

4th rack travel in: 1400

rpm : 0.30...1.70Speed

LOW IDLE 1

Control lever

position degrees: 73...81

Setting point w/out bumper spring

Speed : 650 LIDIII Rack travel in mm: 4.8 Speed rom : 650

Rack travel in mm : 5.20...5.40

Rack travel in mm : 2.00

Speed : 660...720 rom

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 1200 rpm hPa : 1000 Pressure

Rack travel mm : 11.10...11.20

Measurement

1/min: 1200 Speed

1st pressure hPa : -

Rack travel in m: 8.00...8.20

2nd pressure hPa : 400

Rack travel in m: 8.60...8.70

3rd pressure hPa : 600

Rack travel in m: 10.70...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 67.5...69.5

1000 s: (65.5...71.5)

BREAKAWAY

1st version

F01

1mm rack travel less than

full load rack tr: 10.10

rpm : 1260...1270 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 140.0...170.0

1000 s: (136.0...174.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed mon : 650

Rack travel in mm: 5.20...5.40 Del.quantity cm3/: 22.5...26.5

1000 s: (20.0...29.0)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.45...3.55 : (3.40...3.60) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Test sheet : CUM 8,3 u 1 Edition : 15.06.93 Replaces : 10.91 Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 9 400 087 449 Tolerance + - ° : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6P120A320/3RS3264 : 9 400 087 075 EP type number BASIC SETTING Governor Governor design. : RQV350...1100PA973 1st speed rpm: 1100 : 9 420 080 293 Governer no. Rack travel in mm : 11.50...11.60 Customer-spec. information Customer : CUMMINS Del.quantity cm3/: 19.9...20.1 Engine : 6 CTAA - 8.3 L 100 s: (19.6...20.4) : 216.6 1st version kW Spread cm3 : 0.5Rated speed : 2200 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0 Rack travel in mm : 5.9...6.1 Test oil inlet temp. °C : 38...42 Del.quantity cm3/ : 0.5...1.1 100 s: (0.3...1.3) Overflow valve Spread cm3 : 0.5: 1 417 413 D25 100 s: (0.8) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 019 assembly GUIDE SLEEVE TRAVEL 1st speed rpm : 1150 Openina travel mm : 7.00...7.10 : 207...210 pressure, bar 2nd speed rpm : 350 : 1.40...1.80 travel mm Orifice plate 3rd speed rpm : 650 diameter mm : 0,8 : 4.30...4.70 travel mm 4th speed : 1400 rpm : 8.80...9.20 travel mm Test lines : 1 680 750 015 GUIDE SLEEVE POSITION Outside diameter Control-lever position x Wall thickness Degree: -1 : 6.00x1.50x600 x Length mm Speed rpm : 1325

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 1200

Del.quantity : 199.0...201.0 1000 : (196.0...204.0)

BEGINNING OF DELIVERY
Test pressure, bar: 25

per values

Test pressure, bar: 25...27

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

: 5.00 Spread cm3 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 106...114

Testing:

1st rack travel in: 10.50

Speed rpm : 1160...1170 2nd rack travel in: 4.00

rpm : 1330...1360 Speed

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 66...74

Testing:

Speed rpm : 100 Minimum rack trave: 8.00 rpm : 350 Speed

Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

Speed rpm : 425...575

Aneroid/Altitude Compensator Test

1st version Settina

Speed rpm : 500 Pressure hPa : 1200

Rack travel mm : 11.50...11.60

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.90...9.10

2nd pressure hPa : 480

Rack travel in m: 9.60...9.70

3rd pressure hPa : 800

Rack travel in m: 10.70...11.00

START CUT-OUT

Speed 1/min: 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 rpm : 700 Speed

F03

Del.quantity cm3/: 204.0...208.0

1000 s: (200.5...211.5)

Spread cm3 : 6.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 116.0...119.0

1000 s: (114.0...121.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50

Speed rpm : 1160...1170

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 260.0...290.0

1000 s: (256.0...294.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 5.0...11.0

1000 s: (3.0...13.0)

cm3 : 5.00 Spread

1000 s: (8.00)

Remarks:

Start-of-delivery mark is at 8° after start of delivery.

Note remarks

Test sheet : CUM 8,3 u 3 : 15.06.93 Edition Replaces : 10.91 Test oil : ISO-4113

Combination no. : 9 400 087 463

Injection pump

Pump designation : PES6P120A320/3RS3264

EP type number : 9 400 087 075

Governor

Governor design. : RQV350...1100PA973-1

: 9 420 080 317 Governer no.

Customer-spec. information Customer : CUMMINS

: 6 CTAA - 8.3 L Engine

1st version kW : 186.4 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.45...3.55

: (3.40...3.60)
Rack travel in mm : 9.00...12.00
Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 10.40...10.50

Del.quantity cm3/: 17.1...17.3

100 s: (16.8...17.6)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 350.02nd speed

Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.5...1.1

100 s: (0.3...1.3)

Spread cm3 : 0.5 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1150

: 7.00...7.10 travel mm rpm : 350 2nd speed

travel mm

: 1.40. .1.80

3rd speed rpm : 650

: 4.30...4.70 travel mm

4th speed rpm : 1400

travel mm : 8.80...9.20

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1325 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 900

: 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 105...113 Testing: 1st rack travel in: 9.40 rpm : 1160...1170 Speed 2nd rack travel in: 4.00 rpm : 1305...1335 Speed 4th rack travel in: 1500 rem : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 66...74 Testina: Speed : 100 riom Minimum rack trave: 8.00 Speed rpm Rack travel in mm : 5.90...6.10 CONSTANT REGULATION Speed : 425...575 rpm Aneroid/Altitude Compensator Test 1st version Setting Speed: : 500 rpm Pressure hPa : 900 : 10.40...10.50 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa :-Rack travel in m: 9.00...9.20 2nd pressure hPa : 498 Rack travel in m: 9.40...9.50 3rd pressure hpa : 660 Rack travel in m: 10.00...10.30 START CUT-OUT 1/min: 290 (310) Speed

FUEL DELIVERY CHARACTERISTICS

rpm : 700

Aneroid pressure h: 900

Del.quantity cm3/: 166.0...170.0 1000 s: (162.5...173.5) Spread cm3 : 6.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 118.0...121.0 1000 s: (116.0...123.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.40 rpm : 1160...1170 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 260.0...290.0 1000 s: (256.0...294.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 350 Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 5.0...11.0 1000 s: (3.0...13.0) cm3 : 5.00 Spread 1000 s: (8,00) Remarks: Start-of-delivery mark is at 8° after start of delivery.

Speed

1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet Edition

: MB

Replaces

: 21.04.93

Test oil

: ISO-4113

Combination no.

: 9 400 087 477

Injection pump

Pump designation : PES6P120A720RS3256-2

EP type number Governor

: 9 400 087 080

Governor design. : RQV300...1300PA1057

Governer no.

: 9 420 080 338

Customer-spec. information

Customer

: MERCEDES-BENZ

Engine

: OM 366 LA

1st version kw Rated speed

: 125.1 : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Cverflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly

: 1 688 901 019

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,8

Test lines

: 1 680 750 075

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 3.00...3.10

: (2.95...3.15)

Firing order

Rack travel in mm : 20.00...21.00 : 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1000

Rack travel in mm : 4.80...5.40

Del.quantity cm3/: 1.7...2.0

100 s: (1.4...2.3)

Spread

cm3 : 0.2

100 s: (0.3)

2nd speed rpm : 300.0 Rack travel in mm : 7.2...7.5

Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.9)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 0.80...1.30 travel mm

2nd speed rpm : 660

travel mm : 3.80...4.30

3rd speed rpm : 960

: 5.20...5.70 travel mm

4th speed rpm : 1357

: 8.00...8.50 travel mm

5th speed : 1492 rpm

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Speed

Degree: -1

rpm : 1385

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 1000 Speed Del.quantity : 17.0...20.0 1000 : (14.0...23.0) : 2.00 Spread cm3 1000 : (3.00) RATED SPEED 1st version Control Lever position degrees: 106...114 Testing: 1st rack travel in: 9.60 Speed rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1415...1445 Speed 4th rack travel in: 1550 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 73...81 Testing: Speed : 100 rpm Minimum rack trave: 9.00 : 300 rpm Rack travel in mm : 7.30...7.50 CONSTANT REGULATION Speed rpm : 300...450 Aneroid/Altitude Compensator Test 1st version Settina Speed : 500 rpm hPa : 1200 Pressure Rack travel mm : 10.70...10.90 Measurement Speed $1/\min : 500$ 1st pressure hPa : -Rack travel in m: 9.80...10.10 2nd pressure hPa : 350 Rack travel in m: 10.10...10.30 3rd pressure hPa : 420 Rack travel in m: 10.40...10.60 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1200 Speed rpm : 1300 Del.quantity cm3/: 140.0...142.0 1000 s: (137.0...145.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1200 : 800 Speed וחמיו Del.quantity cm3/: 115.0...119.0 1000 s: (112.0...122.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 63.0...65.0 1000 s: (60.0...68.0) Spread cm3 : 8.00 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.60 Speed rpm : 1340...1350 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 90.0...110.0 1000 s: (86.0...114.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 7.20...7.50

Rack travel in mm: 7.20...7.50 Del.cuantity cm3/: 10.0...16.0 1000 s: (7.0...19.0)

Spread cm3 : 8.00 1000 s: (12.00)

Remarks:

Start-of-delivery blocking at 4.05 mm after cyl. 1 start-of-delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 27...29 Note remarks Prestroke mm : 2.80...2.90 : (2.75...2.95) Test sheet : CUM 8,3 a61 Rack travel in mm : 9.00...12.00 Edition : 21.04.93 Firing order : 1-5-3-6-2-4 Replaces : 02.91 Test oil : ISO-4113 Combination no. : 9 400 230 110 Phasing : 0 -60-120-180-240-300 Phasing Injection pump Tolerance + - ° : 0.50 (0.75)Pump designation : PES6A100D320/3RS2691 Time to cyl. no. : 1 : 9 410 230 030 EP type number Governor BASIC SETTING Governor design. : RSV450...1100A0C2190 -42R 1st speed rpm : 1100: 0 420 233 248 Governer no. Rack travel in mm: 12.10...12.20 Customer-spec. information Customer : C.D.C. Del.quantity cm3/: 12.0...12.2 : 6CT830 Engine 100 s: (11.8...12.4) 1st version kW : 150.6 Spread cm3 : 0.4Rated speed : 2200 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 450.0 2nd speed Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 1.4...1.8 Test oil inlet temp. °C : 38...42 100 s: (1.2...2.0) Overflow valve cm3 : 0.6Spread : 1 417 413 047 100 s: (0.8) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 assembly : 1 688 901 101 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Openina pressure, bar : 207...210 Governor spring pre-tension Click setting x : 4.50Orifice plate diameter mm : 0,6 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test Lines : 1 680 750 014 Speed rpm : 1100 : 120.0...122.0 1000 : (118.0...124.0) Del.quantity Outside diameter x Wall thickness : 4.00 Spread cm3 : 6.00x2.00x600 x Length mm 1000 : (6.50) (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values __ Control lever position degrees: 46...54

BEGINNING OF DELIVERY

Testina:

1st rack travel in: 11.10

Speed rpm : 1155...1165

2nd rack travel in: 4.00

rpm : 1245...1255 Speed

3rd rack travel in: 4.00

rpm : 1240...1270 Speed

4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 22...30

Setting point w/out bumper spring

rpm : 450

Rack travel in mm : 5.3

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

rpm : 450

Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.10...12.20

2nd speed rpm : 750

Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/: 134.0...138.0

1000 s: (132.0...140.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

Speed

rpm : 1155...1165

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 145.0...165.0 1000 s: (140.0...170.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

: 450 rom

Rack travel in mm : 5.70...5.90

Del.quantity cm3/: 14.5...18.5 1000 s: (12.5...20.5)

Spread cm3 : 6.00

1000 s: (8.00)

Remarks:

: C.D.C. # 3915685

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet

: MWM

Edition

: 15.06.93

Replaces Test oil

: ISO-4113

Combination no.

: 9 407 083 263

Injection pump

EP type number

Pump designation : PES6A90D320RS2605

Governor

: 9 400 083 078

Governor design. : RSV325...900A1C2132R

Governer no.

: 9 420 083 280

Customer-spec. information Customer

: MWM

Engine

: TD 229-6

1st version kW

: 89.7

Rated speed

: 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 003

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.20...2.30 : (2.15...2.35)

Rack travel in mm: 9.00...12.00

F10

Firing order : 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed

rpm: 900

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 7.3...7.4

100 s: (7.1...7.6)

Spread

cm3 : 0.3

100 s: (0.7)

2nd speed

rpm : 325.0

Rack travel in mm: 6.9...7.1

Del.quantity cm3/: 1.3...1.7

100 s: (1.1...1.9)

Spread

Speed

cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 900

Del.quantity

: 73.0...74.0

1000 : (71.0...76.0)

Spread

cm3 : 3.00

1000 : (7.00)

RATED SPEED

1st version

Control lever

position degrees: 93...101

Testing: 1st rack travel in: 9.20 Speed rpm : 923...928 2nd rack travel in: 4.00 Speed rpm : 954...967 4th rack travel in: 1050 Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever position degrees: 70...78 Setting point w/out bumper spring

Speed rpm : 325 Rack travel in mm : 6.5

Testing: Speed rpm : 100 Minimum rack trave: 19.00

Speed rpm : 325 Rack travel in mm : 6.90...7.10

Rack travel in mm : 2.00 rpm : 365...425 Speed

TORQUE CONTROL Torque control curve - 1st version

1st speed rpm : 900 Rack travel in m: 10.20...10.30

2nd speed rpm : 500

Rack travel in m: 10.20...10.40

5th speed rpm : 375 Rack travel in m: 11.00...11.60

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.20 Speed rpm : 923...928

STARTING FUEL DELIVERY

rpm : 100

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 6.90...7.10 Del.quantity cm3/: 13.5...17.5 1000 s: (11.5...19.5)

Spread cm3 : 4.50

1000 s: (7.00)

Remarks:

APPLICATION

Generator

F11

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : CDC

Edition : 29.06.93 : 01.85 replaces Calibrating oil : ISO-4113

: VE4/12F1250R123-10 Injection pump

Type number : 0 460 424 019 Customer Part-No. :

Customer-specific information Customer : CUMMINS

Engine : 4BTA 3.9

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 016

Opening |

bar: 207.00...210.00 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Cutside diameter : 6.00 x Wall thickness : 2.00 mm: 840

x Length

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.7

mm: +-0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 850 Speed

Setting value mm: 3.70...4.10

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 850

Setting value bar: 5.90...6.50

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1100

Del. quantity cm3/

1000s.: 90.50...91.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0

1000s.: (4.5)

Low-idle speed regulation

1/min: 375

Del. quantity cm3/

1000s.: 22.00...28.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5

1000s.: (7.0)

Full-load speed regulation

1/min: 1340 Speed

Del. quantity cm3/

1000s.: 28.00...34.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 105.00...145.00

1000s.: 105.0 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1100 2nd speed

mm: 4.60...5.40 TD travel

mm: (4.30...5.70)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 850

TD travel mm:	3.704.10	+	Shutoff	
mn:	(3.204.60)	+	electromagnet Volt:	12
Shutoff		+	Del. quantity cm3/:	84.5087.50
electromagnet volt:	12	+	1000s.:	(83.0089.00)
4th speed 1/min:	500	+	12th speed 1/min:	1100
	1.802.60	+	Shutoff	
Short-Es MM:	(1.502.90)	+	electromagnet Volt:	12
Shutoff		+	Del. quyntity cm3/:	90.5091.50
electromagnet Volt:	12	+		(88.094.0)
Committee		+	15th speed 1/min:	850
Supply-pump pressure	e characteristic:	+	Shutoff	
1st speed 1/min:	***	+	electromagnet Volt:	
Supply-pump	500	†	Del. quantity cm3/:	94.5098.50
	/ 70 / 30	†		(93.00100.00)
Shutoff par:	4.304.90	†	20th speed 1/min:	500
	42	†	Shutoff	40
electromagnet Volt: 2nd speed 1/min:	12	†	electromagnet Volt:	12
Supply-pump	650	†	Del. quantity cm3/:	82.0090.00
	5.906.50	Ť	10005.:	(80.0092.00)
Shutoff	3.700.10	T	Mech. shutoff:	
electromagnet Volt:	12	I		
3rd speed 1/min:	1100	I	Mech. Abstellung:	
Supply-pump	1100	I	1st speed 1/min:	1250
	6.707.30	I	Del. quantity cm3/:	
Shutoff		1	10000	(0.003.00)
electromagnet Volt:	12	1	Shutoff	(0.005.00)
		1	electromagnet volt:	12
Overlow quantity at	overflow valve:	1	occorr omagnet voter	T fine
		+	Electr. shutoff:	
1st speed 1/min:	560	1		
Shutoff		+	1st speed 1/min:	375
electromagnet Volt:	12	+	Del. quantity cm3/:	
over flow	41.7083.40	+	1000s.:	(0.003.00)
quantity cm3/10s:	(26.7098.40)	+	Shutoff	
2nd speed 1/min:	1250	+	electromagnet volt:	√
Shutoff		+		
electromagnet Volt: Overflow	12	+	Idle delivery:	
	55.60139.00	+		
qualitity cm3/10s:	(40.60,154.00)	+	1st speed 1/min:	375
Delivery	h-malia a de la constitución de	†	Shutoff	40
Delivery quant. and	breakaway char.:	†	electromagnet Volt:	
		†	Del. quantity cm3/:	22.0028.00
2nd speed 1/min:	1/00	†		(20.0030.00)
Shutoff	1400	I	Dispersion cm3/:	
electromagnet Volt:	12	I	2nd speed 1/mir:	
Del. quantity cm3/:	กักการกา	I	2nd speed 1/min: Shutoff	4)U
1000	(0.003.00)	I	electromagnet Volt:	10
5th speed 1/min:		I	Del. quantity cm3/:	
Shutoff		1		(0.002.00)
electromagnet Volt:	12	1	5th speed 1/min:	
Del. quantity cm3/:	28.0034.00	1	Shutoff	550
1000s.:	(25.00,37.00)	+	electromagnet Volt:	-
oth speed 1/min-		+	Del. quantity cm3/:	
Shutoff		+		(43.0055.00)
electromagnet Volt:	12	+		
bet. quantity cm3/:	69.0075.00	+	Automatic starting t	fuel delivery:
10005.:	(66.0078.03)	+		,
9th speed 1/min:	1250	+	1st speed 1/min:	130
r17		-		
F13				

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 105.00...145.00 1000s.: (105.00...145.00)

2nd speed 1/min: 250

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 65.00...105.00 1000s.: (65.00...105.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 105.00...145.00 1000s.: (105.00...145.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: -

mm: 5.0...5.4 KF MS1 mm: 1.3...1.5 mm: 35.8...37.8 Ya mm: 44.1...49.7 Yb

Remarks:

: CDC # 390 6316

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : CDC

Edition : 29.06.93

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F1250R424 Type number : 0 460 424 079

Customer Part-No. :

Customer-specific information

Customer

Engine : 4 BTAA 3.9

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 109 assembly

Opening

bars 207.00...210.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery Prestroke mm: -

(from BDC): -

Start of delivery block Piston stroke mm: 1.25

mm: +0.02(0.06)

Outlet

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 850 Charge press. hPa: 1000

Setting value mm: 1.00...1.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100 Speed Charge press hPa: 1000

Setting value bar: 6.90...7.50

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 850 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 84.50...85.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/ 1000s.: 52.50...53.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (6.0)

Low-idle speed regulation

Speed 1/min: 400

Del. quantity cm3/

1000s.: 14.50...18.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1325 Speed Charge press hPa: 1000

Del. quantity cm3/ 1000s.: 72.00...78.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 115.00...165.00

1000s.: 115.0

F15

electromagnet Volt:	12	†	Ovanlay montify at	avantino valuas
etectionagnet vott.	12	I	Overlow quantity at	overtiow valve:
Inspection-pump tes Test specifications		+	1st speed 1/min: Charge press. hPa:	
Timing-device chara	cteristic:	Ŧ	Shutoff electromagnet Volt: Overflow :	
2nd speed 1/min:	1250	I	quantity om3/10s:	
	1000	+	2nd speed 1/min:	1250
TD travel mm:	2.102.90 (1.803.20)	t	Charge press. hPa: Shutoff	1000
Shutoff	(1.005.20)	I	electromagnet Volt:	12
electromagnet Volt:	12	+		55.60139.00
3rd speed 1/min:		+	quantity cm3/10s:	
	1000	+	5.4.	
	1.001.40 (0.501.90)	†	Delivery-quant. and	breakaway char.
Shutoff	(0.30(.90)	I		
electromagnet Volt:	12	1	1nd speed 1/min:	700
4th speed 1/min:		+	Charge-air pressure	
Charge press hPa:	1000	+	point hPa:	
TD travel mm:	0.301.10	+		6.7
Shutoff	12	†	Shutoff	10
electromagnet Volt: 8th speed 1/min:		†	electromagnet Volt:	12
Charge press. hPa:		Ι	Del. quantity cm3/:	(65.5073.50)
TD travel mm:	2.003.00	1	2nd speed 1/min:	
TD travel mm:	(1.803.20)	+	Charge press. hPa:	
KSB/AFB		+	Shutoff	
valve Volt:	12	†	electromagnet Volt:	
Shutoff electromagnet Volt:	12	†	Del. quantity cm3/:	
etectionagnet vott.	12	I	3rd speed 1/min:	(0.003,00)
Supply-pump pressure	e characteristic:	1	Charge press. hPa:	
		+	Shutoff	
1st speed 1/min:		+	electromagnet Volt:	12
Charge press. hPa:	1900	†	Del. quantity cm3/:	15.0045.00
Supply-pump pressure bar:	5.506.10	İ	5th speed 1/min:	(15.0045.00)
Shutoff	7.760.16	I	Charge press. hPa:	
electromagnet Volt:	12	+	Shutoff	100.7
2nd speed 1/min:		+	electromagnet Volt:	12
Charge press. hPa:	1006	+	Del. quantity cm3/:	
Supply-pump	(00 7 50	†		(69.0081.00)
pressure bar: Shutoff	6.907.50	İ	9th speed 1/min:	
electromagnet Volt:	12	I	Charge press. hPa: Shutoff	1000
3rd speed 1/min:		1	electromagnet Volt:	12
Charge press. hPa:		+	Del. quantity cm3/:	84.0089.00
Supply-pump		+	1000s.:	(82.5090.50)
	7.508.10	+	10th speed 1/min:	
Shutoff	12	†	Charge press. hPa:	1000
electromagnet Volt: 4th speed 1/min:		I	Shutoff electromagnet Volt:	12
Charge press. hPa:		Į	Del. quantity cm3/:	
Supply-pump		+		(83.5091.50)
pressure bar:	4.004.60	+	12th speed 1/min:	
Shutoff	40	+	Charge press. hPa:	1000
electromagnet Volt:	12	+		

Shutoff electromagnet Volt: 12 Del. quyntity cm3/: 85.50...86.50 1000s.: (83.00...89.00) 1/min: 500 18th speed Charge press. hPa: -Shutoff electromagnet Volt: 12 Del. quantity cm3/: 53.50...54.50 1000s.: (50.00...58.00) Mech. shutoff: Mech. Abstelluna: 1/min: 1250 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: 12 Electr. shutoff: 1/min: 400 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 14.50...18.50 1000s.: (11.50...21.50) cm3/: 5.5 Dispersion 1000s.: (7.6) 2nd speed 1/min: 490 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1/min: 130 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 140.00...190.00 1000s.: (140.00...190.00) 1/min: 240 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...70.00 1000s.: (40.00...70.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12

Del. quantity cm3/: 115.00...165.00 1000s.: (115.00...165.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.4...3.6 K KF mm: KOT MS mm: 1.0...1.4 SVS max. mm: ~ mm: 6.7 LDA stroke mm: 34.8...38.8 Ya Yb mm: 42.7...47.9 Remarks: : C.D.C. # 391 3443 BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : CAS Edition : 29.06.93

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F1000R378-10 Type number : 0 460 424 085

Customer Part-No. :

Customer-specific information

Customer : CASE

Engine : 4 T 390

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Openina

bar: 250.00...253.00 Pressure

Perforated plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke mm: 1.8

mm: +-0.02(0.06)

Outlet.

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 900 Setting value mm: 2.40...2.80

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 900

Setting value bar: 4.00...4.60

Shutoff

electromagnet Volt: 24

Full-load del. w/out charge press.:

1/min: 900

Del. quantity cm3/

1000s.: 69.0...70.0

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0

1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 450

Del. quantity cm3/

1000s.: 7.00...13.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1050 Speed

Del. quantity cm3/

1000s.: 37.50...43.50

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100

Del. quantity cm3/: 80.00...120.00

1000s.: 80.00

Shutoff

electromagnet Volt: 24

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000

mm: 2.70...3.50 TD travel

mm: (2.40...3.80)

Shutoff

electromagnet Volt: 24 3rd speed 1/min: 900

F18

TD travel mm: 2.40...2.80 Shutoff electromagnet Volt: 24
Del. quantity cm3/: 67.00...70.00
1000s.: (65.50...71.50)
10th speed 1/min: 750 mm: (1.90...3.30) Shutoff electromagnet Volt: 24 4th speed 1/min: 750 mm: 1.30...2.10 TD travel Shutoff mm: (1.00...2.40) electromagnet Volt: 24 Del. quantity cm3/: 72.50...75.50 Shutoff 1000s.: (70.50...77.50) 12th speed 1/min: 900 electromagnet Volt: 24 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 24
Del. quyntity cm3/: 69.00...70.00
1000s.: (66.50...72.50)
20th speed 1/min: 500 1/min: 500 1st speed Supply-pump bar: 2.20...2.80 pressure Shutoff Shutoff electromagnet Volt: 24 2nd speed 1/min: 900 electromagnet Volt: 24 Del. quantity cm3/: 71.50...79.50 2nd speed Supply-pump 1000s.: (69.50...81.50) pressure bar: 4.00...4.60 Shutoff Mech. shutoff: electromagnet Volt: 24 3rd speed 1/min: 1000 Electr. shutoff: Supply-pump pressure bar: 4.40...5.00 Shutoff electromagnet Volt: 24 1000s.: (0.00...3.00) Shutoff Overlow quantity at overflow valve: electromagnet volt: -1/min: 500 1st speed Idle delivery: Shutoff electromagnet Volt: 24 1st speed 1/min: 450 Overflow : 41.70...83.40 Shutoff cm3/10s: (26.70...98.40) 1/min: 1000 electromagnet Volt: 24 Del. quantity cm3/: 7.00...13.00 1000s.: (5.00...15.00) quantity 2nd speed Shutoff electromagnet Volt: 24 cm3/: 5.5 Dispersion : 55.60...139.00 1000s.: (7.0) 1/min: 500 Overflow cm3/10s: (40.60...154.00) *quantity* 2nd speed Shutoff Delivery-quant. and breakaway char.: electromagnet Volt: 24 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) 2nd speed 1/min: 1130 Shutoff Automatic starting fuel delivery: 1st speed 1/min: 130 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 95.00...135.00 1000s.: (95.00...135.00) Shutoff electromagnet Volt: 24 Del. quantity cm3/: 15.00...45.00 1000s.: (15.00...45.00) 2nd speed 1/min: 240 1/min: 1050 5th speed Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 55.00...85.00 electromagnet Volt: 24
Del. quantity cm3/: 37.50...43.50
1000s.: (34.50...46.50) 1000s.: (55.00...85.00) 1/min: 1000 9th speed 4th speed 1/min: 100

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 80.00...120.00 1000S.: (80.00...120.00)

Shutoff electromagnet:

Cut-in

: 20.0 : 24.0 min voltage Rated voltage

Mounting and assembly dimensions:

Designation

mn: -

mm: 5.2...5.6 mm: 1.3...1.5 mn: 3.3 KF MS SVS max.

mm: 34.8...38.8 mm: 38.6...44.2 Υa Yb

Remarks:

F20

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet

: CUM

Edition

: 29.06.93

replaces

: 20,10,89 Calibrating oil : ISO-4113

Injection pump

: VE6/12F1325R367-1

Type number

: 0 460 426 146

Customer Part-No. :

Customer-specific information

Customer

Engine

: 6 BT 5.9 IND.

Power Speed KW: 97

1/min: 2650

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp.

with thermometer : 40.00...48.00

Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 688 901 027

Openina |

Pressure

bar: 250.00...253.00

Perforated-plate

diameter

mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 840

Start of delivery

Prestroke

mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block mm: 1.5

Piston stroke

mm: +-0.02(0.06)

Outlet

: D

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

Speed

1/min: 850

Setting value mm: 3.90...4.30

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed

1/min: 850

Setting value bar: 3.90...4.50

Shutoff

electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed

1/min: 1100

Del. quantity cm3/

1000s.: 56.0...57.0

Shutoff

electromagnet Volt: 24

cm3/: 4.0 Dispersion

1000s.: (4.5)

Low-idle speed regulation

Speed

1/min: 375

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 5.5

1000s.: (7.0)

Full-load speed regulation

Speed

1/min: 1400

Del. quantity cm3/

1000s.: 36.00...42.00

Shutoff

electromagnet Volt: 24

Start:

Speed

1/min: 100

Del. quantity cm3/: 60.00...110.00

mind 1000s.: 60.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed TD travel

1/min: 1100

mm: 5.90...6.70

mm: (5.60...7.00)

Shutoff	+ Del. quantity cm3/: 36.0042.00
electromagnet Volt: 24	† 1000s.: (33.0045.00)
3rd speed 1/min: 850	+ 9th speed 1/min: 1325
TD travel mm: 3.904.30	+ Shutoff
mm: (3.404.80)	+ electromagnet Volt: 24
Shutoff	Del. quantity cm3/: 52.5055.50
electromagnet Volt: 24	+ 1000s.: (51.0057.00)
4th speed 1/min: 500	+ 12th speed 1/min: 1100
TD travel mm: 1.302.10	+ Shutoff
mm: (1.002.40)	electromagnet Volt: 24
Shutoff	+ Del. quyntity cm3/: 56.0057.00
electromagnet Volt: 24	1000s.: (53.5059.50)
etectionagnet vott. 24	
Supply-pump pressure characteristic:	15th speed 1/min: 850
supply pump pressure that atteristic:	+ Shutoff
1st speed 1/min: 500	electromagnet Volt: 24
	Del. quantity cm3/: 53.5057.50
Supply-pump	1000\$.: (51.5059.50)
pressure bar: 2.503.10	+ 20th speed 1/min: 500
Shutoff	+ Shutoff
electromagnet Volt: 24	+ electromagnet Volt: 24
2nd speed 1/min: 850	+ Del. quantity cm3/: 42.0050.00
Supply-pump	† 1000s.: (40.0052.00)
pressure bar: 3.904.50	+
Shutoff	+ Mech. shutoff:
electromagnet Volt: 24	+ Mech. Abstellung:
3rd speed 1/min: 1100	+
Supply-pump	+ 1st speed 1/min: 1325
pressure bar: 4.905.50	+ Del. quantity cm3/: 0.003.00
Shutoff	+ 1000S.: (0.003.00)
electromagnet Volt: 24	+ Shutoff
The state of the s	+ electromagnet volt: 24
Organia and an amendal and amendal and an amendal and ame	t cecui dilagiles voce. Et
INPRION CHARTETY AT OVERTION VAIVE:	
Overlow quantity at overflow valve:	+
•	Electr. shutoff:
1st speed 1/min: 500	Electr. shutoff:
1st speed 1/min: 500 Shutoff	Electr. shutoff: 1st speed 1/min: 375
1st speed 1/min: 500 Shutoff electromagnet Volt: 24	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40)	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: -
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24 Overflow : 55.60139.00	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery:
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: -
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00)	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery:
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24 Overflow : 55.60139.00	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 375
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00)	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 24
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00)	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 8.0014.00
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00)	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 8.0014.00 1000s.: (6.0016.00)
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1520	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 8.0014.00 1000s.: (6.0016.00) Dispersion cm3/: 5.5
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1520 Shutoff	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 8.0014.00 1000s.: (6.0016.00) Dispersion cm3/: 5.5 1000s.: (7.0)
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1520 Shutoff electromagnet Volt: 24	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 8.0014.00 1000s.: (6.0016.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 455
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1520 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 8.0014.00 1000s.: (6.0016.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 455 Shutoff
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1520 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 8.0014.00 1000s.: (6.0016.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 455 Shutoff electromagnet Volt: 24
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1520 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 3rd speed 1/min: 1440	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 8.0014.00 1000s.: (6.0016.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 455 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.004.00
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1520 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 3rd speed 1/min: 1440 Shutoff	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 8.0014.00 1000s.: (6.0016.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 455 Shutoff electromagnet Volt: 24
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1520 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 3rd speed 1/min: 1440 Shutoff electromagnet Volt: 24	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 8.0014.00 1000s.: (6.0016.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 455 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.004.00 1000s.: (0.004.00)
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1520 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 3rd speed 1/min: 1440 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 15.0045.00	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 8.0014.00 1000s.: (6.0016.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 455 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.004.00
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1520 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 3rd speed 1/min: 1440 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 15.0045.00 1000s.: (15.0045.00)	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 8.0014.00 1000s.: (6.0016.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 455 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.004.00 1000s.: (0.004.00) Automatic starting fuel delivery:
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1520 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 3rd speed 1/min: 1440 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 15.0045.00 1000s.: (15.0045.00) 5th speed 1/min: 1400	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 8.0014.00 1000s.: (6.0016.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 455 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.004.00 1000s.: (0.004.00) Automatic starting fuel delivery: 1st speed 1/min: 130
1st speed 1/min: 500 Shutoff electromagnet Volt: 24 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 1325 Shutoff electromagnet Volt: 24 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1520 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 3rd speed 1/min: 1440 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 15.0045.00 1000s.: (15.0045.00)	Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Idle delivery: 1st speed 1/min: 375 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 8.0014.00 1000s.: (6.0016.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 455 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.004.00 1000s.: (0.004.00) Automatic starting fuel delivery:

Del. quantity cm3/: 65.00...115.00 1000S.: (65.00...115.00)

2nd speed 1/min: 250

Shutoff

electromagnet Volt: 24
Del. quantity cm3/: 15.00...65.00
1000S.: (15.00...65.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...110.00

1000s.: (60.00...110.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0 : 24.0 Rated voltage

Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5.0...5.4 mm: 1.3...1.7 MS

SVS max. mm: 1.3

Ya

mm: 34.8...38.8 mm: 37.6...43.4 Yb

Remarks:

: C.D.C. # 391 6904

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test scheet Edition : 14.04.92 replaces : 29.06.93 Calibrating oil : ISO-4113 Injection pump : VE6/12F1100R402 : 0 460 426 166 Type number Customer Part-No. : Customer-specific information Customer Engine : 6 BTA- 590 I TEST BENCH REQUIREMENTS Overflow restricti: 1 463 456 303 Calibrating-oil return temp. with thermometer : 40.00...48.00 Electronically : 42.00...50.00 Inlet press., bar: 0.30...0.40 Calibrating nozzle-holder : 1 688 901 027 assembly Opening | Pressure bar: 250.00...253.00 Perforated plate diameter mm: 0.5 Test inj. tubing : 1 680 750 017 Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length Start of delivery Prestroke mm: 0.3 (from BDC): +-0.02(0.04)Start of delivery block Piston stroke mm: 1.5 mm: +-0.02(0.06)Outlet Injection pump setting values

Test specifications in parentheses

Timing-device travel

Speed 1/min: 900 Charge press. hPa: 1000 Setting value mm: 4.80...5.20 Shutoff electromagnet Voit: 24 Supply-pump pressure 1/min: 900 Charge press hPa: 1000 Setting value bar: 4.70...5.30 Shutoff electromagnet Volt: 24 Full-load del. with charge press.: 1/min: 750 Speed Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 71.50...72.50 Shutoff electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.5) Full-load del. w/out charge press.: 1/min: 700 Speed Del. quantity cm3/ 1000s.: 51.00...52.00 Shutoff electromagnet Volt: 24 Low-idle speed regulation 1/min: 400 Speed Del. quantity cm3/ 1**00**0s.: 7.00...13.00 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0) Full-load speed regulation Speed 1/min: 1180 Charge press hPa: 1000 Del. quantity cm3/ 1000s.: 47.00...53.00 Shutoff electromagnet Volt: 24 Start: 1/min: 100 Del. quantity cm3/: 65.00...115.00 1000s.: 65.00 mind Shutoff electromagnet Volt: 24

Inspection-pump test specifications Delivery-quant. and breakaway char.: Test specifications in parentheses Timing-device characteristic: 1nd speed 1/min: 700 Charge-air pressure-setting 2nd speed 1/min: 1100 hPa: 350 Charge press TD travel hPa: 1000 LDA-stroke mm: 5.0 mm: 6.20...7.00 Shutoff electromagnet Volt: 24
Del. quantity cm3/: 64.50...65.50
1000s.: (61.00...69.00)
2nd speed 1/min: 1250 mn: (5.90...7.30) Shutoff electromagnet Volt: 24 3rd speed 1/min: 900 Charge press hPa: 1000 Charge press. hPa: 1000 mm: 4.80...5.20 mm: (4.30...5.70) TD travel Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000S.: (0.00...3.00) 3rd speed 1/min: 1200 Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 24 4th speed 1/min: 750 Charge press hPa: 1000 mm: 3.50...4.30 mm: (3.20...4.60) TD travel electromagnet Volt: 24 Del. quantity cm3/: 15.00...45.00 1000s.: (15.00...45.00) Shutoff electromagnet Volt: 24 1/min: 1180 5th speed Supply-pump pressure characteristic: Charge press. hPa: 1000 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 47.00...53.00 1000s.: (44.00...56.00) 1st speed 1/min: 750 Charge press. hPa: 1000 Supply-pump pressure bar: 4.00...4.60 1/min: 1100 9th speed Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 24 2nd speed 1/min: 900 electromagnet Volt: 24 Charge press. hPa: 1000 Del. quantity cm3/: 59.50...62.50 1000s.: (58.00...64.00) Supply-pump 10th speed 1/min: 900 Charge press. hPa: 1000 Shutoff bar: 4.70...5.30 pressure Shutoff electromagnet Volt: 24 3rd speed 1/min: 1100 electromagnet Volt: 24 Del. quantity cm3/: 61.50...64.50 1000s.: (59.50...66.50) 12th speed 1/min: 750 Charge press. hPa: 1000 Supply-pump bar: 5.50...6.10 pressure 12th speed Shutoff Charge press. hPa: 1000 electromagnet Volt: 24 Shutoff electromagnet Volt: 24
Del. quyntity cm3/: 71.50...72.50
1000s.: (69.00...75.00)
18th speed 1/min: 700 Overlow quantity at overflow valve: 1st speed 1/min: 750 Charge press. hPa: -Charge press. hPa: -Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 51.00...52.00 1000s.: (47.50...55.50) electromagnet Volt: 24 : 41.70...83.40 Overflow cm3/10s: (26.70...98.40) quantity 2nd speed 1/min: 1100 Charge press. hPa: 1000 Mech. shutoff: Shutoff Mech. Abstellung: electromagnet Volt: 24 Overflow : 55.60...139.00 1st speed 1/min: 1100

Charge press. hPa: 1000

quantity cm3/10s: (40.60...154.00)

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: 24 Electr. shutoff: 1st speed 1/min: 400 Charge press. hPa: -Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1/min: 400 1st speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 7.00...13.00 1000s.: (5.00...15.00) cm3/: 5.5 Dispersion 1000s.: (7.0) 1/min: 500 2nd speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) Automatic starting fuel delivery: 1st speed 1/min: 250 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 70.00...120.00 1000s.: (70.00...120.00) 2nd speed 1/min: 450 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 10.00...50.00 1000s.: (10.00...50.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 65.00...115.00 1000s.: (65.00...115.00) Shutoff electromagnet: Cut-in : 20.0 min voltage Rated voltage : 24.0 Mounting and assembly dimensions: Designation

mm: 5.0...5.4

MS mm: 1.3...1.7 LDA stroke mm: 5.0 Ya mm: 34.8...38.8 Yb mm: 40.2...45.8

Remarks:

: CDC # 391 7562

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

Heavy-duty fuel-injection pump for DI-engines: only test using timing-device-travel measuring device with metal jacket

K KF BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : CDC

Edition : 29.06.93

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R498-1

: 0 460 426 212 Type number

Customer Part-No. :

Customer-specific information

Customer : CDC

Engine : 6 BTAA 5,9B

Power KW: 100 1/min: 1250 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 109 assembly

Opening

bar: 207.00...210.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840

x Length

Start of delivery Prestroke mm: -

(from BDC): -

Start of delivery block Piston stroke mm: 1.15

mm: +-0.02(0.06)

; D Outlet

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

1/min: 1000 Speed Charge press. hPa: 1000

Setting value mm: 1.50...1.90

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000 Charge press hPa: 1000

Setting value bar: 6.30...6.90

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 850 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 71.50...72.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 5.0 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 59.50...60.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 5.0 1000s.: (6.0)

Low-idle speed regulation

1/min: 350

Del. quantity cm3/

1000s.: 11.00...15.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1400 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 42.00...48.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Supply-pump Del. quantity cm3/: 100.00...160.00 mind 1000s.: 100.0 bar: 3.90...4.50 pressure Shutoff Shutoff electromagnet Volt: 24 electromagnet Volt: 24 Overlow quantity at overflow valve: Inspection-pump test specifications Test specifications in parentheses 1/min: 500 1st speed Charge press. hPa: -Timing-device characteristic: Shutoff electromagnet Volt: 24 : 41.70...83.40 quantity cm3/10s: (26.70...98.40) 2nd speed 1/min: 1250 Charge press. hPa: 1000 Shutoff 2nd speed 1/min: 1250 hPa: 1000 Charge press TD travel mm: 2.10...2.90 mm: (1.80...3.20) Shutoff electromagnet Volt: 24 3rd speed 1/min: 1000 Charge press hPa: 1000 electromagnet Volt: 24 : 55.60...139.00 Overflow cm3/10s: (40.60...154.00) *quantity* mm: 1.50...1.90 TD travel mm: (1.00...2.40) Delivery-quant. and breakaway char.: Shutoff electromagnet Volt: 24 7.Rotacao 1/min: 850 1/min: 600 1nd speed Charge press. hPa: 1000 Charge-air pressure-setting mm: 0.50...1.30 TD travel hPa: 450 point mm: (0.20...1.60) LDA-stroke mm: 4.0 Shutoff Shutoff electromagnet Volt: 24 electromagnet Volt: 24 Del. quantity cm3/: 68.00...69.00 1000s.: (64.50...72.50) 2nd speed 1/min: 1490 Charge press. hPa: 1000 1/min: 450 8th speed Charge press. hPa: mm: 2.00...3.00 TD travel mm: (1.80...3.20) KSB/AFB Shutoff valve Volt: 24 electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet Volt: 24 1/min: 1445 3rd speed Supply-pump pressure characteristic: Charge press. hPa: 1000 Shutoff electromagnet Volt: 24
Del. quantity cm3/: 15.00...45.00
1000s.: (15.00...45.00)
5th speed 1/min: 1400 1st speed 1/min: 850 Charge press. hPa: 1000 Supply-pump bar: 5.70...6.30 pressure Shutoff Charge press. hPa: 1000 electromagnet Volt: 24 Shutoff 1/min: 1000 2nd speed electromagnet Volt: 24 Charge press. hPa: 1000 Del. quantity cm3/: 42.00...48.00 Supply-pump 1000s.: (39.00...51.00) bar: 6.30...6.90 pressure 1/min: 1250 9th speed Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 24 Shutott electromagnet Volt: 24 Del. quantity cm3/: 73.00...77.00 1000s.: (72.00...78.00) 1/min: 1250 3rd speed Charge press. hPa: 1000 Supply-pump pressure bar: 7.20...7.80 1/min: 1100 10th speed Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 24 4th speed 1/min: 500 electromagnet Volt: 24 Charge press. hPa: 1000

Del. quantity cm3/: 72.50...75.50 1000s.: (70.50...77.50) Del. quantity cm3/: 55.00...85.00 1000s.: (55.00...85.00) 1/min: 850 12th speed Charge press. hPa: 1000 4th speed 1/min: 100 Shutoff Shutoff electromagnet Volt: 24 electromagnet Volt: 24 Del. quyntity cm3/: 71.50...72.50 Del. quantity cm3/: 100.00...160.00 1000s.: (69.00...75.00) 1000s.: (100.00...160.00) 1/min: 500 18th speed Charge press. hPa: -Shutoff Shutoff electromagnet: electromagnet Volt: 24 Cut-in Del. quantity cm3/: 59.50...60.50 1000s.: (56.00...64.00) : 20.0 min voltage : 24.0 Rated voltage Mech. shutoff: Mounting and assembly dimensions: Mech. Abstellung: Designation 1st speed 1/min: 1250 mm: 3.6...3.8 K Charge press. hPa: 1000 KF mm: KOT Del. quantity cm3/: 0.00...3.00 MS mm: -1000s.: (0.00...3.00) mm: 3.7 SVS max. Shutoff LDA stroke mm: 4.0 electromagnet volt: 24 mm: 34.8...38.8 Ya mm: 44.9...50.1 Yb Electr. shutoff: Remarks: 1/min: 350 1st speed : CDC # 328 1848 Charge press. hPa: -Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 350 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 11.00...15.00 1000s.: (8.00...18.00) cm3/: 5.5 Dispersion 1000s.: (7.0) 1/min: 400 2nd speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1st speed 1/min: 130 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 105.00...165.00 1000s.: (105.00...165.00) 2nd speed 1/min: 200 Shutoff electromagnet Volt: 24

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : CDC

: 29.06.93 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R373-7

: 0 460 426 216 Type number

Customer Part-No. :

Customer-specific information

Customer : CDC

Engine : 6 BTA-590

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil

°C return temp.

with thermometer: 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Openina

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00

x Wall thickness : 2.00

x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block

Piston stroke mm: 1.85

mm: +-0.02(0.06)

Outlet

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

Charge press. hPa: 1000

Setting value mm: 1.30...1.70

1/min: 750

Supply-pump pressure

Speed

Speed 1/min: 750

Charge press hPa: 1000

Setting value bar: 3.20...3.80

Full-load del. with charge press.:

1/min: 750 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 84.50...85.50

cm3/: 4.0 Dispersion

1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1**000**\$.: **6**8.50...69.50

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 8.00...14.00

Del. quantity cm3/: 5.5

1000s.: (7.0)

Full-load speed regulation

1/min: 1300 Speed

Charge press hPa: 1000 Del. quantity cm3/ 1000S.: 59.00...65.00

Start:

Speed 1/min: 100

Del. quantity cm3/: 60.00...120.00

1000s.: 60.00 mind

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1050

Charge press hPa: 1000

TD travel mm: 2.20...3.00

mm: (1.90...3.30)

1/min: 750 3rd speed Charge press hPa: 1000
TD travel mm: 1.30...1.70

mm: (0.80...2.20)

4th speed 1/min: 600 Del. quantity cm3/: 80.00...83.00 1000s.: (78.00...85.00) Charge press hPa: 1000 mm: 0.40...1.20 TD travel 12th speed 1/min: 750 mm: (0.10...1.50) Charge press. hPa: 1000 Del. guyntity cm3/: 84.50...85.50 Supply-pump pressure characteristic: 1000s.: (82.00...88.00) 1/min: 500 18th speed 1/min: 500 1st speed Charge press. hPa: Del. quantity cm3/: 68.50...69.50 1000s.: (65.00...73.00) 20th speed 1/min: 500 Charge press. hPa: 1000 Del. quantity cm3/: 83.00...91.00 Charge press. hPa: 1000 Supply-pump pressure bar: 2.20...2.80 1/min: 750 2nd speed Charge press. hPa: 1000 Supply-pump 1000s.: pressure bar: 3.20...3.80 3rd speed 1/min: 1050 Mech. shutoff: Charge press. hPa: 1000 Mech. Abstellung: Supply-pump bar: 4.50...5.10 pressure 1st speed 1/min: 1250 Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 Overlow quantity at overflow valve: 1000s.: (0.00...3.00) 1/min: 500 1st speed : 41.70...83.40 Overflow Idle delivery: cm3/10s: (26.70...98.40) quantity 2nd speed 1/min: 1250 1st speed 1/min: 375 Charge press. hPa: 1000 Dal. quantity cm3/: 8-14 (6-16)Overflow 1000s.: SCHRAUBE 12 MM cm3/: 5.5 : 55.60...139.00 cm3/10s: (40.60...154.00) quantity Dispersion 1000S.: (7.0)
2nd speed 1/min: 500
Del. quantity cm3/: 0.00...4.00 Delivery-quant. and breakaway char.: 1000s.: (0.00...4.00) 1nd speed 1/min: 700 5th speed 1/min: 125 Charge-air pressure-setting Del. quantity cm3/: 0.00...5.00 point hPa: 400 1000S .: SCHRAUBE 3.0 MM LDA-stroke mm: 5.0 Del. quantity cm3/: 77.50...78.50 Automatic starting fuel delivery: 1000s.: (74.00...82.00) 1/min: 1400 2nd speed 1st speed 1/min: 250 Charge press. hPa: 1000 Del. quantity cm3/: 85.00...135.00 Del. quantity cm3/: 0.00...3.00 1000s.: (85.00...135.00) 1000s.: (0.00...3.00) Del. quantity cm3/: 0.00...15.00 2nd speed 1/min: 450 1000s.: (0.00...15.00) Del. quantity cm3/: 48.00...88.00 4th speed 1/min: 1330 1000s.: (48.00...88.00) Charge press. hPa: 1000 Del. quantity cm3/: 15.00...55.00 1/min: 100 4th speed 1000s.: (15.00...55.00) 1/min: 1300 Del. quantity cm3/: 60.00...120.00 5th speed 1000s.: (60.00...120.00) Charge press. hPa: 1000 Del. quantity cm3/: 59.00...65.00 Mounting and assembly dimensions: 1000s.: (56.00...68.00) 1/min: 1250 9th speed Designation Charge press. hPa: 1000 K mm: -Del. quantity cm3/: 76.50...79.50 KF mm: 5.2...5.6 1000s.: (75.00...81.00) MS mm: 1/min: 1050 mm: 5.0 10th speed LDA stroke Charge press. hPa: 1000 Ya mm: 37.0...41.0

Yb

mm: 43.7...48.9

Remarks:

: CDC # 392 4062

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test scheet : CDC : FD 361 Copi. date: Edition : 29.06.93 replaces Calibrating oil : ISO-4113 Injection pump : VE6/12F1100R512 : 0 460 426 217 Type number Customer Part-No. : Customer Part-No. : Customer-specific information Customer : CASE Engine : 6 T 590 TEST BENCH REQUIREMENTS Overflow restricti: 1 463 456 303 Calibrating-oil return temo. with thermometer : 40.00...48.00 Electronically : 42.00...50.00 Inlet press., bar: 0.30...0.40 Calibrating nozzle-holder assembly : 1 688 901 027 Openina Pressure bar: 250.00...253.00 Perforated-plate diameter mm: 0.5Test inj. tubing : 1 680 750 017 Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840 Start of delivery Prestroke mm: 0.2

(from BDC): +0.02(0.04)Start of delivery block Piston stroke mm: 1.5 mm: +-0.02(0.06)Outlet | : D Injection—pump setting values Test specifications in parentheses

Timing-device travel Speed 1/min: 900 Charge press. hPa: 1000 Setting value mm: 2.40...2.80 Shutoff electromagnet Volt: 12 Supply-pump pressure Speed 1/min: 900 Charge press hPa: 1000 Setting value bar: 5.70...6.30 Shutoff electromagnet Volt: 12 Full-load del. with charge press.: 1/min: 700 Speed Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 76.50...77.50 Shutoff electromagnet Volt: 12 cm3/: 4.0 Dispersion 1000s.: (4.5) Full-load del. w/out charge press.: Speed 1/min: 500 Del. quantity cm3/ 1000s.: 49.00...50.00 Shutoff electromagnet Volt: 12 Low-idle speed regulation Speed 1/min: 400 Del. quantity cm3/ 1000s.: 6.00...12.00 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0) Full-load speed regulation Speed 1/min: 1180 Charge press hPa: 1000 Del. quantity cm3/ 1000s.: 38.00...42.00 Shutoff electromagnet Volt: 12 Start: Speed 1/min: 100 Del. quantity cm3/: 50.00...80.00

1000s.: 50.00

mind

Shutoff electromagnet Volt:	12	Overflow quantity cm3/10	: 55.60139.00 s: (40.60154.00)
Inspection-pump tes Test specifications	t specifications in parentheses	Delivery-quant. a	nd breakaway char.:
Timing-device chara	cteristic:	1nd speed 1/min	
2nd speed 1/min:	1100	Charge-air pressu	re-setting a: 350
Charge press hPa:	1000		n: 5.9
	3.704.50	Shutoff	L. 47
Shutoff	(3.404.80)	electromagnet Volume Del. quantity cm3	
electromagnet Volt:		1000s	.: (64.5072.50)
3rd speed 1/min: Charge press hPa:	900 +	2nd speed 1/min	
	2.402.80	Charge press. hPa	3: 1000
mm:	(1.903.30)	electromagnet Vol	t: 12
Shutoff	12	Del. quantity cm3	/: 0.003.00
electromagnet Volt: 4th speed 1/min:		3rd speed 1/min	.: (0.003.00)
	1000	Charge press. hP	
TD travel mm:	0.801.60	Shutoff	
Shutoff mm:	(0.501.90)	electromagnet Vol	
electromagnet Volt:	12 I	Del. quantity cm3.	(15.0035.00)
_	+	4th speed 1/min	
Supply-pump pressure	+	Charge press. hPa Shutoff	a: 1000
1st speed 1/min:		electromagnet Vol	t: 12
Charge press. hPa: Supply-pump	1000	Del. quantity cm3.	7: 5.0035.00
	3.804.40	5th speed 1/mir	
Shutoff	+	Charge press. hPa	
electromagnet Volt:		Shutoff	. 40
2nd speed 1/min: Charge press. hPa:	1000	electromagnet Volume Del. quantity cm3.	
Supply-pump	+		: (34.0046.00)
	5.706.30	9th speed 1/mir	
Shutoff electromagnet Volt:	12	Charge press. hPa Shutoff	a: 1000
3rd speed 1/min:		electromagnet Vol	:: 12
Charge press. hPa:		Del. quantity cm3	/: 66.0069.00
Supply-pump	6.507.10	1000\$: (64.5070.50)
pressure bar: Shutoff	5.507.10	12th speed 1/mir Charge press. hPa	
electromagnet Volt:	12	Shutoff	1. 1000
Overlow quantity at	overflow valve:	electromagnet Volt Del. quyntity cm3.	<i>'</i> : 76.5077.50
1st speed 1/min:	500		: (74.0080.00)
Charge press. hPa: Shutoff		18th speed 1/mir Charge press. hPa Shutoff	
electromagnet Volt:		electromagnet Volt	
	41.7083.40	Del. quantity cm3	
quantity cm3/10s: 2nd speed 1/min:		20th speed 1/mir	: (46.0053.00)
Charge press. hPa:		Charge press. hPa	
Shutoff electromagnet Volt:	12	Shutoff	. 12
Creeki Gliagnet VULLE	··· +	electromagnet Voli	. 14

Del. quantity cm3/: 72.00...78.00 1000s.: (70.00...80.00) SVS max. mm: 6.0 LDA stroke mm: 5.9 mm: 34.8...38.8 Ya Mech. shutoff: mm: 35.9...41.1 Yb Electr. shutoff: Remarks: : CDC # 392 4983 1st speed 1/min: 400 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1/min: 4C0 1st speed Shutoff electromagnet Voit: 12 Del. quantity cm3/: 6.00...12.00 1000s.: (4.00...14.00) cm3/: 5.5 1000s.: (7.0) 1/min: 375 Dispersion 5th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 11.00...19.00 1000s.: (9.00...21.00) Automatic starting fuel delivery: 1/min: 180 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00...100.00 1000s.: (70.00...100.00) 2nd speed 1/min: 350 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 65.00...85.00 1000s.: (65.00...85.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 50.00...80.00 1000s.: (50.00...80.00) Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage Mounting and assembly dimensions: Designation K man: -KF mm: 5.2...5.6

GO7

MS

mm: 1.0...1.4

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN

Edition : 23.07.93

Replaces

Test oil : ISO-4113

Combination no. : 0 400 849 203

Injection pump

Pump designation : PE10A95D520/5L\$2501

EP type number : 0 410 699 997

Governor

Governor design. : RQ900AB985R : 0 420 201 618 Governer no.

Customer-spec. information Customer : MAN

Engine : D2530MTE

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.70...1.80

: (1.65...1.85)

Rack travel in mm : 9.00...12.00

: 10-9-4-1-8-7-Firing order

6-3-5-2

: 0-45-72-117-144-189-216-261-288-333 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 10.2...10.4

100 s: (10.0...10.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : ? Rack travel in mm : ? Del.quantity cm3/:?

100 s: (?)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 102.5...104.5 1000 : (100.5...106.5)

: 3.00 Spread cm3 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 29...37

Testing:

1st rack travel in: 10.40 rpm : 895...950 Speed 2nd rack travel in: 4.50 rpm : 930...940 Speed

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10,40

rpm : 895...905 Speed

HIGH IDLE

1st version

Speed rpm : 936 Rack travel in mm : 4.50...4.80

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.20...5.40
Del.quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7779

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM Edition : 02.07.93 Replaces Test oil : ISO-4113 Combination no. : 0 400 866 195 Injection pump Pump designation : PES6A100D320/3RS2763 EP type number : 0 410 806 006 Governor Governor design. : RSV375...1000A0c2190 -70R : 0 420 233 309 Governer no. Customer-spec information Customer : C.D.C. Engine : 6 CTA 1st version kW : 166.0 Rated speed : 2000 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 101 Openina pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 9.00...12.00 firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - * : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1000 Rack travel in mm : 12.90...13.00 Del.quantity cm3/: 13.3...13.5 100 s: (13.1...13.7) cm3 : 0.4Spread 100 s: (0.6) rpm : 375.0 2nd speed Rack travel in mm : 5.3...5.5 Del.quantity cm3/: 1.7...2.1 100 s: (1.4...2.3) Spread cm3 : 0.6100 s: (0.8) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x :? FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1000 : 133.5...135.5 Del.quantity 1000 : (131.5...137.5) Spread cm3 : 4.00 1000 : (6.50) RATED SPEED 1st version Control Lever position degrees: 37...45

Testing:

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

1st rack travel in: 11.90 Speed rpm : 1050...1060 2nd rack travel in: 4.00

Speed rpm: 1125...1135 3rd rack travel in: 4.00

Speed rpm : 1120...1150

4th rack travel in: 1200

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 15...23

Setting point w/out bumper spring

Speed rpm : 375 Rack travel in mm: 4.9

Testing:

Speed rpm : 100

Minimum rack trave: 19.00 Speed rpm : 375

Rack travel in mm : 5.30...5.50

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 12.90...13.00

2nd speed rpm : 750

Rack travel in m: 13.60...13.80

Complete the transfer of the second of the s FUEL DELIVERY CHARACTERISTICS

1st version

Speed rom : 750

Del.quantity cm3/: 146.0...150.0 1000 s: (144.0...152.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90

Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 145.0...165.0

1000 s: (140.0...170.0) Rack travel in mm: 20.00...21.00

LOW IDLE

Speed rpm : 375

Rack travel in mm : 5.30...5.50

Del.quantity cm3/: 17.0...21.0

1000 s: (14.5...23.5)

Spread

cm3 : 6.00

1000 s: (8.00)

Remarks:

: C.D.C. # 3921117

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

G11

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM

Edition : 15.06.93

Replaces

Test oil : ISO-4113

Combination no. : 0 400 866 215

Injection pump

Pump designation: PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1050A0c2190

-85R

: 0 420 233 324 Governer no.

Customer-spec. information Customer : C.D.C

: 6 CT 8.3 Engine |

1st version kW : 154.4 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 12.5...12.7

100 s: (12.3...12.9)

Spread cm3 : 0.4

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.5...1.9

100 s: (1.3...2.2)

Spread cm3 : 0.6100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

: 125.5...127.5 Del.quantity

1000 : (123.5...129.5) : 4.00 Spread

cm3 1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 11.40 Speed rpm : 1090...1100 2nd rack travel in: 4.00 Speed mpm : 1140...1150 3rd rack travel in: 4.00 rpm : 1135...1165 Speed 4th rack travel in: 1275 Speed rpm : 0.30...1.40 LOW IDLE 1 Control Lever position degrees: 19...27 Setting point w/out bumper spring rom : 400 Rack travel in mm : 5.4 Testina: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 400 Rack travel in mm : 5.80...6.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.40 Speed rpm : 1090...1100 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 145.0...165.0 1000 s: (140.0...170.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 400 Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 15.5...19.5 1000 s: (13.0...22.0) Spread cm3 : 6.00 1000 s: (8.00) Remarks: : C.D.C. # 3921141 Limit shutoff stop screw to 1.0 mm. Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

Note remarks

Test sheet

: CUM

Edition

: 15.06.93

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 866 216

Injection pump

Pump designation: PES6A1000320/3RS2691

EP type number

: 9 410 230 025

Governor

Governor design.

: RSV400...1050A0c2216

-8R

: C.D.C.

Governer no.

: 0 420 233 333

Customer-spec. information Customer

Engine

: 6 CT 8.3 ltr

1st version kW

: 131.0

Rated speed

: 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 017

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,6

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order

: 1-5-3-6-2-4

Phasina

: 0-60-120-180-240-300

Tolerance + - *

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm : 1050

Rack travel in mm : 11.30...11.40

Del.quantity cm3/: 10.6...10.8

100 s: (10.4...11.0)

Spread

cm3 : 0.4

100 s: (0.6)

2nd speed

rpia : 400.0

Rack travel in mm: 5.5...5.7

Del.quantity cm3/: 1.4...1.8

Spread

100 s: (1.1...2.0)

cm3 : 0.6100 s: (0.8)

GUIDE SLEEVE POSITION Control-Lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Spread

rpm : 1050

Del.quantity

: 106.0...108.0

1000 : (104.0...110.0)

: 4.00

cm3

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 44...52

Testing:

1st rack travel in: 10.30

Speed rpm : 1090...1100

2nd rack travel in: 4.00

rpm : 1150...1160 Speed

3rd rack travel in: 4.00

Speed rpm : 1140...1170 4th rack travel in: 1250

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 24...32

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.1

Testina:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 400

Rack travel in mm : 5.50...5.70

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 11.30...11.40

rpm : 750 2nd speed

Rack travel in m: 12.30...12.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750 Del.quantity cm3/ : 120.0...124.0

1000 s: (118.0...126.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

: 100 Speed LDW

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm: 5.50...5.70 Del.quantity cm3/: 14.0...18.0 1000 s: (11.5...20.5)

Spread

cm3 : 6.00

1000 s: (8.00)

Remarks:

: C.D.C. # 3921106

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

Test sheet : DEE

: 21.04.93 Edition : 02.93 Replaces

Test oil : ISO-4113

: 0 400 876 381 Combination no.

Injection pump

Pump designation : PES6A100D410RS2762-1

EP type number : 0 410 806 008

Governor

Governor design. : RSV425...1050A0C2252

-1L

: 0 420 232 571 Governer no.

Customer-spec. information Customer : JOHN DEERE

Engine : 6076TRW-30

1st version kW : 131.5 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 D1C

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05 : (2.90...3.10)

Rack travel in mm : 10.50...10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 11.30...11.40

Del.quantity cm3/: 10.9...11.1

100 s: (10.5...11.1)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 425.0 Rack travel in mm: 5.5...5.7 Del.quantity cm3/: 2.1...2.5

100 s: (1.9...2.7) cm3 : 0.6

Spread 100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm : 1050

: 109.0...111.0 1000 : (105.0...111.0) Del.quantity

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10.30

rpm : 1095...1105

2nd rack travel in: 4.00

Speed rpm : 1165...1175

3rd rack travel in: 4.00

Speed rpm : 1155...1185 4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 20...28

Setting point w/out bumper spring

Speed rpm : 425 Rack travel in mm: 5.1

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

Speed rpm : 425

Rack travel in mm : 5.50...5.70

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050 Rack travel in m: 11.30...11.40

rpm : 750 2nd speed

Rack travel in m: 13.10...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 750 Speed

Del.quantity cm3/: 134.5...138.5 1000 s: (132.5...140.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30

rpm : 1095...1105 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 100.0...120.0 1000 s: (95.0...125.0)

LOW IDLE

rpm : 425 Speed

Rack travel in mm: 5.50...5.70 Del.quantity cm3/: 21.5...25.5 1000 s: (19.5...27.5)

Spread

cm3 : 6.00 1000 s: (8.00)

Remarks:

: JOHN DEERE # RE41833

Start-of-delivery mark = 13,5° after

start of delivery cyl. 1.

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in

full-load delivery with torque-control

spring retainer.

APPLICATION

Tractor (tractor engines)

G17

Note remarks

Test sheet

: DEE

Edition

: 21.04.93

Replaces

: 02.93

Test oil

: ISO-4113

Combination no. : 0 400 876 411

Injection pump

Pump designation : PES6A100D410RS2762-1

EP type number

: 0 410 806 908

Governor

Governor design.

: RSV425...1100A0C2252

-2L

Governer no.

: 0 420 232 591

Customer-spec, information Customer

: JOHN DEERE

Engine

: 6075ADW-30

1st version kW

: 135.0

Rated speed

: 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 101

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0.6

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm

: 2.95...3.05

: (2.90...3.10)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasina

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1100

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 10.4...10.6

109 s: (10.2...10.8)

Spread

Spread

Speed

cm3 : 0.4

100 s: (0.6)

2nd speed

rpm : 425.0

Rack travel in mm: 6.0...6.2

Del.quantity cm3/: 3.1...3.5

100 s: (2.9...3.7)

cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1100

Del.quantity

: 104.5...106.5 1000 : (102.5...108.5)

Spread

cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 45...53

Testing:

1st rack travel in: 10.10

Speed rpm : 1140...1150

2nd rack travel in: 4.00

rpm : 1205...1215 Speed

3rd rack travel in: 4.00

rpm : 1195...1225 Speed

4th rack travel in: 1350

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 19...27

Setting point w/out bumper spring

rom : 425 Rack travel in mm: 5.6

Testing:

rpm : 100 Speed Minimum rack trave: 19.00

rpm : 425

Rack travel in mm : 6.00...6.20

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 11.10...11.20

2nd speed rpm : 700

Rack travel in m: 13.50...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rom : 700

Del.quantity cm3/: 141.0...145.0 1000 s: (139.0...147.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 100.0...120.0

1009 s: (95.0...125.0)

LOW IDLE

rpm : 425 Speed

Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 31.0...35.0

1000 s: (29.0...37.0)

cm3 : 6.00Spread 1000 s: (8.00)

Remarks:

: JOHN DEERE # RE55529

Start-of-delivery mark = 13.5° after

start of delivery cyl. 1.

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control

spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DEE Edition : 02.07.93 : 02.93 Replaces Test oil : ISO-4113 Combination no. : 0 400 876 416 Injection pump Pump designation : PES6A100D410RS2762-1 EP type number : 0 410 806 008 Governor Governor design. : RSV400...1100A2C2229 -1L : 0 420 232 594 Governer no. Customer-spec. information Customer : JOHN DEERE : 6076 TF 030 Engine 1st version kW : 142.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly Opening | pressure, bar : 207...210 Orifice plate : 0.6 diameter mm Test Lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Prestroke mm : 2.95...3.05 : (2.90...3.10) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasina : 9-60-120-180-240-300 Tolerance $+ - \circ : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 12.00...12.10 Del.quantity cm3/: 12.0...12.2 100 s: (11.8...12.4) Spread cm3 : 0.4100 s: (0.6) rpm : 400.02nd speed Rack travel in mm : 5.2...5.4 Del.quantity cm3/ : 1.9...2.3 100 s: (1.6...2.5) Spread cm3 : 0.6100 s: (0.8) GUIDE SLEEVE POSITION Control-lever position Degree: -3 non : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ?FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1100 Del.quantity : 120.0...122.0 1000 : (118.0...124.0) : 4.00 Spread cm3 1000 : (6.50) RATED SPEED 1st version Control lever position degrees: 43...51

Testing:

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

1st rack travel in: 11.00

Speed rpm : 1145...1155

2nd rack travel in: 4.00

Speed rpm : 1205...1215

3rd rack travel in: 4.00

Speed rpm : 1195...1225

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1 Control Lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm : 4.8

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 400

Rack travel in mm : 5.20...5.40

Rack travel in mm : 2.00

Speed rpm : 550...610

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.00...12.10

2nd speed rpm : 700

Rack travel in m: 13.90...14.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm: 700

Del.quantity cm3/: 151.0...154.0

1000 s: (148.5...156.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm: 100

Del.quantity cm3/: 100.0...120.0

1000 s: (95.0...125.0)

LOW IDLE

Speed rpm: 400

Rack travel in mm : 5.20...5.40

Del.quantity cm3/: 19.0...23.0

1000 s: (16.5...25.5)

Spread cm3 : 6.00

1000 s: (8.00)

Remarks:

: JOHN DEERE # RE48640

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control

Start-of-delivery mark = 13,5° after

start of delivery cyl. 1.

spring retainer.

Note remarks

Test sheet

: DEE

Edition

: 15.06.93

Replaces Test oil

: 03.93 : ISO-4113

Combination no.

: 0 400 876 417

Injection pump

Pump designation: PES6A100D410RS2762-1

EP type number

: 0 410 806 008

Governor

Governor design.

: RSV425...1100A0C2252

-4L

Governer no.

: 0 420 232 595

Customer-spec. information Customer

Engine

: JOHN DEERE

: 6076ARW-32

1st version kW

: 145.0

Rated speed

: 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 101

Openina |

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,6

Test Lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm

: 2.95...3.05 : (2.90...3.10)

Firing order

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1100

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 11.4...11.6

100 s: (11.2...11.8)

cm3 : 0.4

100 s: (0.6)

rpm : 425.0

Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 2.6...3.0

100 s: (2.3...3.2)

Spread

2nd speed

Spread

cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1100

Del.quantity

: 114.0...116.0

1000

: (112.0...118.0) cm3 : 4.00

1000 : (6.50)

RATED SPEED

Spread

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 10.90

rpm : 1145...1155 Speed

2nd rack travel in: 4.00

Speed rpm : 1205...1215

3rd rack travel in: 4.00

rpm : 1195...1225 Speed

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever

position degrees: 20...28 Setting point w/out bumper spring

Speed rpm : 425 Rack travel in mm : 5.3

Testing:

Speed : 100 rpm Minimum rack trave: 19.00

rpm : 425 Speed

Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 11.90...12.00

2nd speed rpm : 750

Rack travel in m: 13.90...14.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750 Del.quantity cm3/ : 143.5...147.5

1000 s: (141.5...149.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 100.0...120.0 1000 s: (95.0...125.0)

LOW IDLE

rpm : 425 Speed

Rack travel in mm : 5.70...5.90

Del.quantity cm3/: 26.0...30.0

1000 s: (23.5...32.5)

Spread cm3 : 6.001000 s: (8.00)

Remarks:

: JOHN DEERE # RE55711

Start-of-delivery mark = 13,5° after

start of delivery cyl. 1.

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Note remarks

Test sheet : VOL

: 20.12.91 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 401 846 505E

Injection pump

Pump designation : PE6P110A320RS483 EP type number : 0 411 816 159

Governor

Governor design. : RQV250...1100PA918E

: 0 421 813 772 Governer no.

Customer-spec. information

Customer : VOLVO-TRUCK

Engine : TD71

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.00...3.10 Prestroke mm

: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 11.20...11.30

Del.quantity cm3/: 10.1...10.3

100 s: (9.8...10.6)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 250.0 2rid speed Rack travel in mm: 5.3...5.5 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.3)

cm3 : 0.3Spread 100 s: (0.6)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

: 1.10...1.30 travel mm

2nd speed rpm : 380

: 2.30...2.60 travel mm

rpm : 500 3rd speed

: 2.90...3.30 travel mm

4th speed rpm : 1260

: 7.70...7.90 travel mm

5th speed rpm : 1400

travel mm : 9.00...9.30

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

Speed rpm : 1330

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 101.0...103.0 1000 : (98.0...106.0)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version Control Lever

position degrees: 104...112

Testina:

1st rack travel in: 10.20

Speed : 1160...1170 rpm

2nd rack travel in: 4.00

speed rpm : 1260...1290 4th rack travel in: 1400 Speed rpm

LOW IDLE 1 Control lever

position degrees: 56...64

Testina:

Speed : 100 rom Minimum rack trave: 6.80 rpm : 250

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 250...450

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 rpm hPa : 900 Pressure

: 11.20...11.30 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.70...8.90

2nd pressure hPa : 560

Rack travel in m: 11.00...11.10

3rd pressure hPa : 290

Rack travel in m: 9.10...9.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: rpm : 700 Speed

Del.quantity cm3/: 68.0...70.0

1000 s: (65.0...73.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20

Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 170.0...200.0

1000 s: (166.0...204.0) Rack travel in mm : 20.06...21.00

LOW IDLE

rpm : 250

Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 16.0...20.0 1000 s: (13.0...23.0) Spread cm3 : 3.00

1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =

2.40...2.60 mm.

Permissible alteration from 2.20...2.90

Note remarks

: DAF 11,7 m : 23.10.92 Test sheet Edition Replaces : 02.92

Test oil : ISO-4113

Combination no. : 0 401 846 566

Injection pump

Pump designation : PE6P110A320RS526 EP type number : 0 411 816 178

Governor

Governor design. : RQ275/1000PA818-3

Governer no. : C 421 801 534

Customer-spec. information Customer : DAF

Engine : LT 160 G

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 14.00...15.00

Firing order : 1-5-3-6-2Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10 & maximum rack tra: 13.0...14.0 Difference ° CS : 2.00...4.00

BASIC SETTING

1st speed rpm: 600

Rack travel in mm: 14.20...14.30

Del.quantity cm3/: 15.6...15.8

100 s: (15.3...16.0)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0Rack travel in mm: 8.0...8.2 Del.quantity cm3/: 2.5...3.G

100 s: (2.3...3.3)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 1000

: 156.0...158.0 Deliguantity

1000 : (153.5...160.5)

Spread cm3 : 4.00 1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm Rack travel in mm: 15.8

Testing:

1st rack travel in: 12.50

rpm : 1030...1045 Speed

2nd rack travel in: 4.00

Speed rpm : 1100...1130 4th rack travel in: 1300

rom : 0.00...1.40Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 8.1

Testing:

Speed : 200 rom Minimum rack trave: 10.70 rpm : 300 Speed

Rack travel in mm : 8.00...8.20

Rack travel in mm: 3.00

rpm : 370...410 Speed

TORQUE CONTROL

Dimension a mm : 0.40

Torque control curve - 1st version

1st speed rpm : 980

Rack travel in m: 13.40...13.60

2nd speed rpm : 600

Rack travel in m: 14.40...14.60

3rd speed rpm : 750

Rack travel in m: 13.90...14.10

4th speed rpm : 825

Rack travel in m: 13.60...13.80

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 600 rpm hPa : 1000 Pressure

: 14.20...14.30 Rack travel mm

Measurement

Speed $1/\min: 600$

1st pressure hPa : -

Rack travel in m: 12.70...12.90 2nd pressure hPa : 290

Rack travel in m: 13.80...13.90

3rd pressure hPa : 260

Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 rpm : 980

Del.quantity cm3/: 136.0...138.0

1000 s: (132.0...142.0)

Aneroid pressure h: rpm : 600 Speed

Del.quantity cm3/: 122.0...124.0

1000 s: (119.5...126.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.50

rpm : 1030...1045 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 230.0...320.0

1000 s: (276.0...324.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 8.00...8.20 Del.quantity cm3/ : 25.5...30.5

1000 s: (23.0...33.0)

cm3 : 4.50 Spread

1000 s: (7.50)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Note remarks

Test sheet : VOL 10,0 o6
Edition : 05.02.93
Replaces : 08.91
Test oil : ISO-4113

Combination no. : 0 401 846 745

Injection pump

Pump designation : PE6P110A320RS3080 EP type number : 0 411 816 722

Governor

Governor design. : RQV250...1100PA919

Governer no. : 0 421 813 776

Customer—spec. information Customer : VOLVO

Engine : TD100GA

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Folerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 12.30...12.40

Del.quantity cm3/: 16.7...16.9

100 s: (16.4...17.2)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0 Rack travel in mm : 3.9...4.1 Del.quantity cm3/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm3 : 0.3 100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.20...1.30

2nd speed rpm : 370

travel mm : 2.60...3.00

3rd speed rpm : 430

travel mm : 3.50...3.90

4th speed rpm : 1160

travel mm : 8.10...8.30

5th speed rpm : 1210

travel mm : 9.40...9.60

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1

Speed rpm: 1180

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700 Aneroid pressure h: 900

Del.quantity : 167.0...169.0 1000 : (164.0...172.0)

Spread cm3 : 4.00

1000 : (7.50)

--

RATED SPEED

1st version Control lever

position degrees: 115...123

Testing:

1st rack travel in: 11.30

rpm : 1160...1170 Speed

2nd rack travel in: 4.00

rpm : 1220...1250 Speed

4th rack travel in: 1350

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 60...68

Testing:

Speed : 100 rpm

Minimum rack trave: 5.30 Speed rpm : 250 Rack travel in mm : 3.90...4.10

CONSTANT REGULATION

Speed rpm : 270...380

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : 900

Rack travel mm : 12.30...12.40

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.80...10.00

2nd pressure hPa : 610

Rack travel in m: 12.10...12.20

3rd pressure hPa : 280

Rack travel in m: 10.10...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 700

Del.quantity cm3/: 121.0...124.0 1000 s: (118.5...126.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30

Speed rpm : 1160...1170

STARTING FUEL DELIVERY

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 3.90...4.10

Del.quantity cm3/: 15.0...19.0 1000 s: (12.5...21.5) Spread cm3 : 3.00 1000 s: (6.00)

Remarks:

Dalivery-valve spring pre-tension =

2.40...2.60 mm.

Permissible alteration from 2.20...2.90

BOSCH INJ. PUMP TEST SPECIFICATIONS Phasing : 0-60-120-180-240-300 Note remarks Tolerance + - ° : 0.50 (0.75)Test sheet : DAF 8,3 p 9 Edition : 26.06.92 BASIC SETTING : 03.91 Replaces Test oil : ISO-4113 1st speed rpm: 1000: 0 401 846 905 Combination no. Rack travel in mm : 12.30...12.40 Injection pump Del.quantity cm3/: 12.0...12.2 Pump designation : PE6P110A720RS3225Z EP type number : D 411 816 762 100 s: (11.7...12.4) Governor Governor design. ; RQ275/1200PA913-1 Spread cm3 : 0.4: 0 421 801 549 Governer no. 100 s: (0.7) Customer-spec. information Customer : DAF 2nd speed rpm : 275.0 Rack travel in mm: 7.2...7.4 Del.quantity cm3/: 1.4...1.9 Engine : HT 168 100 s: (1.1...2.1) TEST BENCH REQUIREMENTS cm3 : 0.4Spread 100 s: (0.7) Test oil inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: -1 rpm : 550 : 1 417 413 025 Speed Rack travel in mm : 15.20...16.40 Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder : 0 681 343 009 assembly 1st version rpm : 1000 Speed Opening Aneroid pressure h: 1000 Del.quantity : 120.0...122.0 pressure, bar : 172...175 1000 : (117.5...124.5) : 4.00 Spread cm3 Test lines : 1 680 750 015 1000 : (7.50) Outside diameter RATED SPEED x Wall thickness x Length mm : 6.00x1.50x600 1st version (A) Injection pump setting values Setting point: Insp. values in parentheses Set equal delivery quant. Speed rpm Rack travel in mm : 15.8 per values ___ Testing: BEGINNING OF DELIVERY 1st rack travel in: 11.30 rpm : 1235...1250 Test pressure, bar: 25...27 Speed 2nd rack travel in: 4.00 Prestroke mm : 3.70...3.80 rpm : 1320...1350 Speed : (3.65...3.85) 4th rack travel in: 1400 Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 rpm : 0.00...1.40Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 275 Rack travel in mm: 4.8 Testing: Speed : 100 rpm Minimum rack trave: 7.00 rpm : 275 Speed Rack travel in mm : 4.70...4.90 Rack travel in mm : 2.00 rpm : 340...380 Speed TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 13.30...13.50 2nd speed rpm : 1200 Rack travel in m: 13.10...13.40 Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed rpm hPa : 1000 Pressure Rack travel mm : 12.30...12.40 Measurement 1/min : 600 Speed 1st pressure hPa : -Rack travel in m: 10.80...10.90 2nd pressure hPa : 400 Rack travel in m: 12.00...12.10 3rd pressure hPa : 320 Rack travel in m: 11.50...11.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: -Speed rpm : 600 Del.quantity cm3/: 83.5...85.5 1000 s: (81.0...88.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.30 rpm : 1235...1250 Speed LOW IDLE

Speed

HO3

rom

: 275

Rack travel in mm : 4.70...4.90
Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 11,0 x 2 : 05.03.93 Edition Replaces : 06.91

Combination no. : 0 401 846 946

Injection pump

Pump designation : PE6P110A320LS3851-1 EP type number : 0 411 818 780

: ISO-4113

Governor

Test oil

Governor design. : RQ300/1050PA1007-1

Governer no. : 0 421 801 589

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM441

1st version kW : 151.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 N25

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 101 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.6

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50

: (4.35...4.55) Rack travel in mm : 9.00...12.00

: 6-3-5-2-4-1 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rom : 1050

Rack travel in mm : 12.20...12.30

Del.guantity cm3/: 11.8...12.0

100 s: (11.5...12.2)

Spread cm3 : 0.8

100 s: (1.3)

2nd speed rpm : 300.0 Rack travel in mm: 6.7...6.9 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.4)

Spread cm3 : 0.6

100 s: (1.1)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 650 Speed

Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

: 118.0...120.0 Del.quantity

1000 : (115.5...122.5)

cm3 : 8.50 Spread

1000 : (13.00)

RATED SPEED

1st version

Setting point:

Speed nom Rack travel in mm: 13.5 Testing:

1st rack travel in: 11.20

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1170...1200 4th rack travel in: 1300

rpm : 0.00...2.00Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.8

Testing:

Speed rpm : 200 Minimum rack trave: 8.40

rpm : 300 Speed

Rack travel in mm : 6.70...6.90

Rack travel in mm : 2.00

rpm : 390...430 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/: 119.0...125.0
1000 s: (116.5...127.5)

Spread cm3 : 11.00

1000 s: (14.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.20

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0 1000 s: (126.0...154.0)

Remarks:

Test sheet

Note remarks

Edition Replaces : 23.10.92 : 09.92

Test oil

: ISO-4113

Combination no. : 0 401 846 967

Injection pump

Pump designation: PE6P110A320LS3851-2

EP type number

: D 411 816 785

Governor

Governor design. : RQV350...1050PA378

-12

Governer no.

: 0 421 814 016

Customer-spec. information

Customer

: MERCEDES-BENZ

Engine

: 0M441

1st version kW

: 151.0

Rated speed

: 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly

: 1 688 901 101

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm : 0,6

Test lines

: 1 680 750 008

Outside diameter x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 4.40...4.50

: (4.35...4.55)

Rack travel in mm : 9.00...12.00 Firing order : 6-3-5-2-4-1

Phasing

: 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed

Spread

Spread

rpm: 1050

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 11.8...12.0

100 s: (11.5...12.2)

cm3 : 0.8

100 s: (1.3)

2nd speed

rpm : 350.0

Rack travel in mm: 7.5...7.7

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.4)

cm3 : 0.6

100 s: (1.1)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 350 1st speed

travel mm : 1.80...2.30

2nd speed

rpm : 455

travel mm

: 3.40...3.90

3rd speed

rpm : 880

travel mm

: 5.60...6.10

4th speed

rpm : 1107

travel mm

: 8.00...8.50 : 1209

5th speed travel mm

rpm

: 9.80...10.20

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1130

Rack travel in mm : 9.90...12.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 1050 Speed Del.quantity : 118.0...120.0 1000 : (115.5...122.5) cm3 : 8.50 1000 : (13.00) Spread RATED SPEED 1st version Control lever position degrees: 116...124 Testina: 1st rack travel in: 11.20 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rpm : 1160...1190 4th rack travel in: 1300 rpm : 0.00...1.40Speed LOW IDLE 1 Control lever position degrees: 67...75 Testing: : 250 Speed rpm Minimum rack trave: 10.00 rpm : 350 Rack travel in mm : 7.50...7.70 CONSTANT REGULATION Speed rpm : 350...450 START CUT-OUT 1/min: 270 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed : 600 Speed rpm : ouu Del.quantity cm3/: 119.0...125.0 1000 s: (116.5...127.5) rom cm3 : 11.00 Spread 1000 s: (14.0) : 1050 rpm Speed Del.quantity cm3/: 88.0...90.0 1000 s: (85.5...92.5) cm3 : 11.00 Spread 1000 s: (14.0) BREAKAWAY

full load rack tr: 11.20
Speed rpm : 1090...1100
STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/: 130.0...150.0
1000 s: (126.0...154.0)
Remarks:

H07

1st version

1mm rack travel less than

Note remarks

Test sheet

: 20.09.91 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 401 848 798

Injection pump

Pump designation: PE8P110A320LS3846-2

EP type number : 0 411 818 725

Governor

Governor design. : RQ300/1050PA187-25

Governer no. : 0 421 801 482

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM442

1st version kW : 213.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 101

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.40...4.50 Prestroke mm

: (4.35...4.55) Rack travel in mm : 9.00...12.00

Firing order : 8-7-2-6-3-5-4

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.20...12.30

Del.guantity cm3/: 12.0...12.2

100 s: (11.7...12.4)

cm3 : 0.8Spread

100 s: (1.3)

2nd speed rpm : 300.0 Rack travel in mm : 7.5...8.1

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.4) Spread cm3 : 0.6

100 s: (0.9)

GUIDE SLEEVE POSITION Control-Lever position

Degree: -1

rpm : 650

Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

: 120.0...122.0 Del.quantity

1000 : (117.5...124.5)

Spread

cm3 : 8.50 1000 : (13.00)

RATED SPEED

1st version

Setting point:

Speed Rack travel in mm: 13.5 Testing:

1st rack travel in: 11.20

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1175...1205 4th rack travel in: 1300 Speed rpm : 0.00...2.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm: 7.8

Testing:

Speed rpm : 200 Minimum rack trave: 9.50

Speed rpm : 300 Rack travel in mm : 7.50...8.10

Rack travel in mm : 2.00 Speed rpm : 390...430

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 600 Speed

Del.quantity cm3/: 121.0...127.0

1000 s: (118.5...129.5)

cm3 : 11.00 Spread

1000 s: (14.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

:

Remarks:

Note remarks

Test sheet

: 20.09.91 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 401 848 816

Injection pump

Pump designation : PE8P110A320LS3846-2

EP type number : 0 411 818 725

Governor

Governor design. : RQ300/1050PA1007

Governer no. : 0 421 801 588

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M442 Engine

1st version kw : 195.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50

: (4.35...4.55)

Rack travel in mm : 9.00...12.00

Firing order

: 8-7-2-6-3-5-

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 11.4...11.6

100 s: (11.1...11.8)

Spread cm3 : 0.8

100 s: (1.3)

2nd speed rpm : 300.0

Rack travel in mm: 7.7...8.3 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.4)

Spread cm3 : 0.6

100 s: (1.1)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 650

Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 114.0...116.0

1000 : (111.5...118.5)

Spread

cm3 : 8.50 1000 : (13.00)

RATED SPEED

1st version

Setting point:

Speed rpm

Rack travel in mm: 13.5

Testing:

1st rack travel in: 10.90

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

Speed rpm : 1170...1200 4th rack travel in: 1300 Speed rpm : 0.00...2.00

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 8.0

Testing:

Speed rpm : 200 Minimum rack trave: 9.50

Speed rpm : 300 Reck travel in mm : 7.70...8.30

Rack travet in mm : 2.00 Speed rpm : 390...430

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del.quantity cm3/: 114.0...120.0

1000 s: (111.5...122.5)

Spread cm3 : 11.00

1000 s: (14.)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.90

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0)

Remarks:

H11

Note remarks

Test sheet : FIA 17,2 g1 : 03.02.93 Edition : 11.91 Replaces

Test oil : ISO-4113

Combination no. : 0 401 848 822

Injection pump

Pump designation: PE8P120A920/5LS3857

: 0 411 828 725 EP type number

Governor

Governor design. : RQV300...1200PA357

Governer no. : 0 421 813 188

Customer-spec. information Customer : IVECO-FIAT

Engine : 8280.02.412

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 U25

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Openina .

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.85...2.95

: (2.85...3.00)

Rack travel in mm : 9.00...12.00

: 1- 8- 4- 3- 6- 5- 7- 2 Firing order

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 8.00...8.10

Del.quantity cm3/: 14.1...14.3

100 s: (13.8...14.6)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm: 4.0...4.4 Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6)

Spread cm3 : 0.3 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1295

: 9.10...9.30 travel mm

rpm : 250 2nd speed

: 0.70...1.10 travel mm 3rd speed rpm : 500

: 3.30...3.90 travel mm

rpm : 800 4th speed

: 5.10...5.50 travel mm

rpm : 1500 5th speed

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1330

Rack travel in mm : 6.30...8.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

Del.quantity : 141.0...143.0

1000 : (138.0...146.0)

Spread cm3 : 5.00

1000 : (9.00)

1st version Control lever

position degrees: 114...122

Testing:

1st rack travel in: 7.00

rpm : 1290...1300 Speed

2nd rack travel in: 4.00

rpm : 1335...1365

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 60...68

Testing:

Speed rpm : 100 Minimum rack trave: 5.70

rpm : 300 Speed

Rack travel in mm : 4.10...4.30

CONSTANT REGULATION

Speed rpm : 310...440

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 Del.quantity cm3/ : 139.0...145.0 1000 s: (136.0...148.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.00

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 220.0...250.0 1000 s: (216.0...254.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 4.00...4.40

Del.quantity cm3/: 17.0...23.0 1000 s: (14.0...26.0)

RATED SPEED

Spread cm3 : 8.001000 s: (12.00)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

H13

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 18,2 g Edition : 05.01.90 : 11.89 Replaces : ISO-4113 Test oil Combination no. : 0 401 849 746 Injection bumb Pumo designation : PE10P120A520/4LS3855 EP type number : 0 411 829 709 Governor Governor design. : RQV300...1000PA838 : 0 421 813 585 Governer no. Customer-spec. information Customer : MAN Engine : D2840LF/460 : 338.0 1st version kW : 2000 Rated speed TEST BENCH REQUIREMENTS Test oil : 38...42 inlet temp. °C Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Openina pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00x1.50x1000 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

Prestroke mm : 3.90...4.00 : (3.85...4.05) Rack travel in mm : 9.00...12.00 : 10- 9- 4- 1- 8- 7-6- 3- 5- 2 Firing order Phasing : 0-45-72-117-144-189-216-261-288-333 Tolerance + - * : 0.50 (0.75) Time to cyl. no. : 10 BASIC SETTING 1st speed rpm: 1000 Rack travel in mm : 10.50...10.60 Del.quantity cm3/: 20.4...20.6 100 s: (20.1...20.9) Spread cm3 : 0.5100 s: (0.9) 2nd speed rpm : 300.0Rack travel in mm: 5.2...5.4 Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6) cm3 : 0.8Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 1.00...1.40 travel mm rpm : 500 2nd speed : 3.10...3.50 travel mm rpm : 850 3rd speed : 6.60...6.90 travel mm 4th speed rpm : 1000 : 7.70...7.90 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1025 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version

rpm : 1000

Aneroid pressure h: 1000

Speed

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Del.quantity : 204.0...206.0

1000 : (201.0...209.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version: Control lever

position degrees: 116...124

Testing:

1st rack travel in: 9.50

Speed rpm : 1040...1050

2nd rack travel in: 4.00

rpm : 1105...1135 Speed

4th rack travel in: 1250

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 80...88

Testing:

Speed : 100 MCC Minimum rack trave: 6.80 : 300 rom

Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

: 335...445 Speed rpm

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rom Pressure hPa : 1000

: 10.50...10.60 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.20...9.40

2nd pressure hPa : 380

Rack travel in m: 9.60...9.70

3rd pressure hPa : 500

Rack travel in m: 10.10...10.30

START CUT-OUT

1/min: 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

H15

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 144.0...146.0 1000 s: (141.0...149.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

bel.quantity cm3/: 190.0...210.0

1000 s: (186.0...214.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 5.20...5.40

Del.quantity cm3/: 17.0...23.0 1000 s: (14.0...26.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

: MAN-NR. 2-7779

Note remarks

: DAF 11,7 f : 27.11.92 Test sheet Edition Replaces : 06.90

: ISO-4113 Test oil

Combination no. : 0 401 876 335

Injection pump

Pumo designation : PE6P120A320RS415-1 EP type number : 0 411 826 123

Governor

Governor design. : RSV250...1100P5A508

: 0 421 833 298 Governer no.

Customer-spec. information Customer : DAF

Engine : DKV 1160

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Phasing : 0-60-120-180-240-300

Firing order : 1-5-3-6-2-4

Rack travel in mm : 9.00...12.00

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 650

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 17.1...17.3

100 s: (16.8...17.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0 Rack travel in mm: 6.7...6.9 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3) cm3 : 0.8

Spread 100 st (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 650 Aneroid pressure h: 700

: 171.0...173.0 Del.quantity 1000 : (168.5...175.5)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 95...103

Testing:

1st rack travel in: 9.10

rpm : 1135...1145 Speed

2nd rack travel in: 4.00

rpm : 1175...1205 Speed

H16

3rd rack travel in: 4.00 rpm : 1200...1230 Speed 4th rack travel in: 1375 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 66...74 Setting point w/out bumper spring rpm : 250 Rack travel in mm: 5.8 Testina: : 100 : 250 Speed rom Speed rpm Rack travel in mm : 6.20...6.40 Rack travel in mm: 2.00 : 630...730 Speed COM TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1090 Rack travel in m: 10.10...10.20 2nd speed npm : 650 Rack travel in m: 11.40...11.50 3rd speed rpm : 800 Rack travel in m: 10.80...11.00 4th speed rpm : 850 Rack travel in m: 10.40...10.70 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 700 Pressure Rack travel mm : 11.10...11.20 Measurement 1/min: 600 Speed 1st pressure hPa : -Rack travel in m: 9.50...9.70 2nd pressure hPa : 290 Rack travel in m: 10.70...10.90 3rd pressure hPa : 260 Rack travel in m: 10.20...10.50 FUEL DELIVERY CHARACTERISTICS 1st version

Del.quantity cm3/: 129.0...131.0 1000 s: (126.5...133.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.10 Speed rpm : 1135...1145 STARTING FUEL DELIVERY : 100 Speed man Del.quantity cm3/: 310.0...350.0 1000 s: (306.0...354.0) Rack travel in mm : 19.50...21.00 LOW IDLE Speed rpm : 250 Rack travel in mm : 6.20...6.40 Remarks: •

1st version
Aneroid pressure h: 700
Speed rpm : 1090
Del.quantity cm3/: 159.0...161.0
1000 s: (156.0...164.0)
Aneroid pressure h: —
Speed rpm : 600

H17

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DAF 11,7 f1 : 27.11.92 Edition Replaces : 06.90 Test oil : ISO-4113 Combination no. : 0 401 876 338 Injection pump Pump designation : PE6P12DA32DRS415-1 EP type number : 0 411 826 123 Governor Governor design. : RSV250...1100P5A508 **_Q** : 0 421 833 321 Governer no. Customer-spec. information Customer : DAF Engine : KS 238 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Openina pressure, bar : 207...210 Orifice plate diameter mm : 0.8 Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00X1.50X1000 x Length mm (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ BASIC SETTING 1st speed rpm: 650 Rack travel in mm : 11.90...12.00 Del.quantity cm3/: 18.8...19.0 100 s: (18.5...19.2) Spread cm3 : 0.5100 s: (0.9) rpm : 250.0 2nd speed Rack travel in mm: 6.6...6.8 Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6) Spread cm3 : 0.8100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 5.00FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 650 Aneroid pressure h: 700 Del.quantity : 188.0...190.0 1000 : (185.5...192.5) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 99...107

Testing: 1st rack travel in: 10.00 rpm : 1130...1140 Speed 2nd rack travel in: 4.00 Speed rpm : 1185...1215

3rd rack travel in: 4.00 rpm : 1225...1255 Speed 4th rack travel in: 1400 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 70...78 Setting point w/out bumper spring rpm : 250 Rack travel in mm: 6.0 Testing: Speed rpm : 100 Speed rpm : 250 Rack travel in mm : 6.40...6.60 Rack travel in mm: 2.00 rpm : 600...700 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1090 Rack travel in m: 11.00...11.10 2nd speed rpm : 650 Rack travel in m: 12.20...12.30 3rd speed rpm : 760 Rack travel in m: 11.60...11.80 4th speed rpm : 810 Rack travel in m: 11.20...11.40 Aneroid/Altitude Compensator Test 1st version Settina Speed : 600 rom Pressure hPa : 700 Rack travel mm : 11.90...12.00 Measurement Speed 1/min : 600 1st pressure hPa : -Rack travel in m: 9.70...9.90 2nd pressure hPa : 300 Rack travel in m: 11.30...11.40 3rd pressure hPa : 230 Rack travel in m: 10.40...10.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm : 1090 Speed Del.quantity cm3/: 181.0...183.0 1000 s: (178.0...186.0)

Del.quantity cm3/: 131.0...133.0 1000 s: (128.5...135.5)

BREAKAWAY

1st version imm rack travel less than

full load rack tr: 10.00 rpm : 1130...1140 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 290.0...330.0 1000 s: (286.0...334.0) Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250 Rack travel in mm : 6.40...6.60

Remarks:

H19

Speed

Aneroid pressure h: -

rpm : 600

Note remarks

Test sheet : PEN 7,1 d : 7.7.93 Edition : 23.10.91 Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 749

Injection pump

Pump designation : PE6P120A320RS3163

EP type number

: 0 411 826 750 Governor

Governor design. : RSV250...1250P0A374

: 0 421 833 222 Governer no.

Customer-spec. information

: VOLVO-PENTA Customer

Engine : TAMD 71 A

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Phasing

: 0-60-120-180-240-300

: 1-5-3-6-2-4

Firing order

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1000

Rack travel in mm : 12.80...12.90

Del.quantity cm3/: 21.6...21.8

100 s: (21.3...22.1)

Spread

Spread

cm3 : 0.5

100 s: (0.9)

2nd speed mpm : 250.0

Rack travel in mm: 4.0...4.2 Del.quantity cm3/: 1.1...1.6

100 s: (0.8...1.8)

cm3 : 0.5

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1500

: 216.0...218.0 Del.quantity

1000 : (213.0...221.0) cm3 : 5.00

Spread

1000 : (9.00)

RATED SPEED

1st version

Control Lever

position degrees: 103...111

Testing:

1st rack travel in: 11.80

rpm : 1290...1300

2nd rack travel in: 4.00

H20

Speed rpm : 1370...1400 4th rack travel in: 1500

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 72...80 Setting point w/out bumper spring

rom : 250 Speed Rack travel in mm: 3.6

Speed rpm : 250 Rack travel in mm : 4.00...4.20

Rack travel in mm : 2.00 rpm : 360...420 Speed

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 rpm hPa : 1500 Pressure

Rack travel mm : 12.80...12.90

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 7.80...8.00 2nd pressure hPa : 310 Rack travel in m: 8.00...8.10

3rd pressure hPa : 1000

Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 1000 Del.quantity cm3/: 116.0...118.0 1000 s: (113.0...121.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.80

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 170.0...200.0

1000 s: (166.0...204.0)

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 4.00...4.20 Del.quantity cm3/: 11.0...16.0

1000 s: (8.5...18.5) Spread

cm3 : 5.00 1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.

Permissible alteration from 2.20...2.90

APPLICATION

Navy

H21

Note remarks

Test sheet

: MAN 11,9q10 : 21.08.91

Edition Replaces

: 08,91

Test oil

: ISO-4113

Combination no. : 0 402 036 086

Injection pump

Pump designation : PES6P110A720/3LS477-

EP type number

: 0 412 016 071

Governor

Governor design. : RQ250/1050PA845-2

Governer no.

: 0 421 801 604

Customer-spec. information Customer

: MAN

Snaine

: D2866 F/UM

1st version kW

: 152.0

Rated speed

: 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Openina

pressure, bar

: 172...175

Test lines

: 1 680 750 015

Outside diameter

x Wall thickness

x Length mm

: 6.00x1.50x600

(A) Injection pump setting values

Set equal delivery quant.

Insp. values in parentheses

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

Phasing

: 0-60-120-180-240-300

Tolerance + - °

 $\pm 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed

rpm: 800

Rack travel in mm : 10.90...11.00

Del.quantity cm3/: 10.0...10.3

100 s: (9.7...10.5)

Spread

cm3 : 0.4

100 s: (0.7)

rpm : 250.0 2nd speed

Rack travel in mm: 6.0...6.2

Del.quantity cm3/: 1.5...2.0 100 s: (1.2...2.2)

Spread

cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 800

Del.quantity

: 100.0...103.0

1000 : (97.5...105.5)

Spread

cm3 : 4.00 1000 : (7.50)

RATED SPEED

1st version

Speed

Setting point:

rpm : 600

Speed

Rack travel in mm: 20.0

Testing:

1st rack travel in: 9.90

rpm : 1095...1110

2nd rack travel in: 4.00

Speed

rpm : 1170...1200

4th rack travel in: 1350 Speed ram : 0.00...1.00 LOW IDLE 1 Setting point w/out bumper spring rpm : 250 Rack travel in mm: 6.1 Testing: Speed rpm : 100 Minimum rack trave: 7.60 rpm : 250 Rack travel in mm : 6.00...6.20 Rack travel in mm: 2.00 Speed rom : 330...370 TORQUE CONTROL Dimension a mm : -Torque control curve - 1st version rpm : 800 1st speed Rack travel in m: 10.90...11.00 2nd speed rpm : 1050 Rack travel in m: 10.80...11.00 START CUT-OUT 1/min : 170 (190) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 1050 Del.quantity cm3/: 110.0...114.0 1000 s: (107.0...117.0) Speed rpm : 500 Del.quantity cm3/: 92.0...96.0 1000 s: (89.0...99.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.90 rpm : 1095...1110 Speed STARTING FUEL DELIVERY rpm : 100

Del.quantity cm3/: 110.0...130.0 1000 s: (106.0...134.0)

: 250

rpm

Rack travel in mm : 6.00...6.20

Del.quantity cm3/: 15.0...20.0 1000 s: (12.5...22.5) Spread cm3 : 4.50 1000 s: (7.50)

Remarks:

: MAN-NR. 3-7156

LOW IDLE

Speed

Note remarks

Test sheet : MAN Edition : 18.12.91

Replaces :-

Test oil : ISO-4113

Combination no. : 0 402 036 088

Injection pump

Pump designation : PES6P110A720/3LS477-

2

EP type number : 0 412 016 071

Covernor

Governor design. : RQ300/750PA845-3 Governer no. : 0 421 801 630

Customer—spec. information Customer : MAN

Engine : D2866 UH

1st version kW : 133.0 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 750

Rack travel in mm : 11.80...11.90

Del.quantity cm3/: 12.6...12.9

100 s: (12.3...13.1)

Spread cm3:0.4

100 s: (0.7)

2nd speed rpm : 300.0 Rack travel in mm : 6.0...6.2 Del.quantity cm3/ : 1.5...2.0

100 s: (1.2...2.2)

Spread cm3: 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

Speed rpm: 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 750

Del.quantity : 126.0...129.0

1000 : (123.5...131.5)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point: Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.80

Speed rpm : 795...810

2nd rack travel in: 4.00

Speed rpm : 830...860

4th rack travel in: 1000

rpm : 0.00...1.00 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.1

Testing:

Speed rpm : 100 Minimum rack trave: 7.60

Speed rpm: 300
Rack travel in mm: 6.00...6.20
Rack travel in mm: 2.00
Speed rpm: 350...410

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 750

Rack travel in m: 11.80...11.90 2nd speed rpm : 500

Rack travel in m: 11.80...12.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 500 Speed

Del.quantity cm3/: 117.0...121.0

1000 s: (114.0...124.0)

BREAKAWAY

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 110.0...130.0 1000 s: (106.0...134.0)

LOW IDLE

Rack travel in mm : 6.00...6.20

Del.quantity cm3/: 15.0...20.0 1000 s: (12.5...22.5) Spread cm3: 4.50

1000 s: (7.50)

1st version

1mm rack travel less than

full load rack tr: 10.80

Speed rpm : 795...810

rpm : 300 Speed

H25

Remarks:

: MAN-NR. 3-7187

APPLICATION

Rail car

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM Edition : 22.01.93 Replaces Test oil : ISO-4113 Combination no. : 0 402 036 749 Injection pump Pump designation : PES6P110A120RS3286 EP type number : 0 412 016 737 Governor Governor design. : kQV350...1150PA1014 -2K Governer no. : 0 421 815 296 Customer-spec. information Customer : CUMMINS **Engine** : 6CTA-A 1st version kW : 168.0 Rated speed : 2300 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 101 Openina pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.20...3.30 : (3.15...3.35) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 1100 1st speed Rack travel in mm : 15.30...15.40 Del.quantity cm3/ : 15.1...15.3 100 s: (14.9...15.5) Spread cm3 : 0.4100 s: (0.7) 2nd speed rpm : 350.0 Rack travel in mm: 5.7...5.9 Del.quantity cm3/: 1.3...1.7 100 s: (1.0...1.9) Spread cm3 : 0.6100 s: (0.9) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 350 : 2.10...2.40 travel mm 2nd speed : 450 rpm : 3.40...3.80 travel mm rpm : 900 3rd speed travel mm : 5.60...6.00 4th speed rpm : 1200 travel mm : 8.10...8.30 5th speed rom : 1400 travel mm : 10.20...10.60 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1100Aneroid pressure h: 1200 Del.quantity : 151.0...153.0 1000 : (149.0...155.0) Spread cm3 : 4.00 1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 55...63

Testina:

1st rack travel in: 14.10

rpm : 1215...1225 Speed

2nd rack travel in: 4.00

rpm : 1380...1410 Speed

4th rack travel in: 1500

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 12...20

Testina:

Speed **rpm** : 275

Minimum rack trave: 7.30

Speed rpm : 350 Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

Speed rpm : 350...650

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 15.30...15.40 and speed rpm : 750 Rack travel in m: 14.00...14.40

2nd speed

rpm : 1150 3rd speed

Rack travel in m: 15.10...15.30

4th speed rpm : 650

Rack travel in m: 13.80...14.20

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 1100 CDM

Pressure hPa : 1200

Rack travel mm : 15.30...15.40

Measurement

Speed 1/min: 1100

1st pressure hPa : -

Rack travel in m: 8.90...9.30

2nd pressure hPa : 250 Rack travel in m: 10.60...10.70

3rd pressure hPa : 560

Rack travel in m: 13.60...14.00

START CUT-OUT

1/min : 290 (300) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 750
Del.quantity cm3/: 152.0...156.0
1000 s: (150.0...158.0)
Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -Speed rpm : 500

Del.quartity cm3/: 74.5...78.5

1000 s: (72.5...80.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.10

rpm : 1215...1225 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm5/ : 135.0...175.0

1000 s: (130.0...180.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.70...5.90 Del.quantity cm3/: 13.0...17.0 1000 s: (10.5...19.5)

Spread cm3 : 6.00

1000 s: (9.00)

Remarks:

: C.D.C. # 3921971

Start-of-delivery mark = 5.5° after

start of delivery cyl. 1.

Note remarks

Test sheet

: CUM

Edition

: 22.01.93

Replaces

Test oil

: ISO-4113

Combination no.

: 0 402 036 750

Injection pump

Pump designation : PES6P110A120RS3286

EP type number

: 0 412 016 737

Governor

Governor design.

: RQV350...1150PA1014

-3K

Governer no.

: 0 421 815 298

Customer

Customer-spec. information : CDC

Engine

: 6CTA-A

1st version kW

: 156.5

Rated speed

: 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 101

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,6

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm

: 3.20...3.30

: (3.15...3.35)

Rack travel in mm : 9.00...12.00

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1100

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 14.1...14.3

100 s: (13.9...14.5)

Spread

cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 350.0

Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.7...2.1

100 s: (1.4...2.3)

cm3 : 0.6

100 s: (0.9)

(8) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed

Spread

rpm : 350

travel mm : 2.10...2.40

2nd speed

rpm : 450

travel mm : 3.40...3.80 3rd speed

travel mm

rpm : 900

: 5.60...6.00

4th speed

: 1200 rpm : 8.10...8.30

travel mm 5th speed

: 1400 man

travel mm

: 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Spread

rpm : 1100

Aneroid pressure h: 1200

Del.quantity

: 141.5...143.5

1000 : (139.5...145.5)

: 4.00 cm3

1000 : (7.50)

RATED SPEED 1st version Control lever position degrees: 52...60 Testing: 1st rack travel in: 13.30 rpm : 1220...1230 Speed 2nd rack travel in: 4.00 rpm : 1365...1395 Speed 4th rack travel in: 1500 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 10...18 Testing: Speed rom Minimum rack trave: 7.30 Speed rpm : 350 Rack travel in mm : 5.80...6.00 CONSTANT REGULATION rpm : 350...520 Speed TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 14.50...14.60 and speed rpm : 750 2nd speed Rack travel in m: 13.40...13.60 rpm : 1150 3rd speed Rack travel in m: 14.30...14.50 rpm : 650 4th speed Rack travel in m: 13.10...13.50 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1100 rom Pressure hPa : 1200 Rack travel mm : 14.50...14.60 Measurement 1/min: 1100 Speed

1st pressure hPa : -Rack travel in m: 8.90...9.30 2nd pressure hPa : 250 Rack travel in m: 10.60...10.70 3rd pressure hPa : 560 Rack travel in m: 13.60...14.00 START CUT-OUT

1/min: 290 (300) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200

rpm : 750 Speed Del.quantity cm3/: 137.0...141.0 1000 s: (135.0...143.0) cm3 : 8.00 Spread

1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500

Del.quantity cm3/ : 74.5...78.5 1000 s: (72.5...80.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.30 Speed rpm : 1220...1230

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...175.0 1000 s: (130.0...180.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 17.0...21.0 1000 s: (14.5...23.5) Spread cm3 : 6.00 1000 s: (9.00)

Remarks:

: C.D.C. # 3921972

Start-of-delivery mark = 5.5° after start of delivery cyl. 1.

J01

Note remarks

Test sheet

: CUM

Edition

: 22.01.93

Replaces

Test oil

: ISO-4113

Combination no. : 0 402 036 751

Injection pump

Pump designation : PES6P110A120RS3286

EP type number

: 0 412 016 737

Governor

Governor design.

: RQV350..1200PA1014

-4K

Governer no.

: 0 421 815 299

Customer-spec. information Customer

: CDC

Engine

: 6CTA-A

1st version kW

: 156.5

Rated speed

: 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 101

Openina

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,6

Test Lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm

: 3.20...3.30

: (3.15...3.35)

Rack travel in :mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1100

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 14.1...14.3

100 s: (13.9...14.5)

Spread

2nd speed

cm3 : 0.4

100 s: (0.7)

rpm : 350.0

Rack travel in mm: 5.8...6.0

Del.quantity cm3/: 1.7...2.1 100 s: (1.4...2.3)

Spread

cm3 : 0.6100 s: (0.9)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 2.10...2.40

rpm : 450 2nd speed

travel mm

: 3.40...3.80

rpm : 900 3rd speed

: 5.60...6.00 travel mm

rpm : 1200 4th speed

: 8.10...8.30 travel mm

5th speed rpm : 1400

travel mm

: 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Spread

rpm : 1100

Aneroid pressure h: 1200 Del.quantity

: 141.5...143.5

1000 : (139.5...145.5)

: 4.00 cm3

1000 : (7.50)

RATED SPEED 1st version Control Lever position degrees: 54...62 Testing: 1st rack travel in: 13.30 Speed : 1270...1280 rpm 2nd rack travel in: 4.00 rpm : 1400...1430 Speed 4th rack travel in: 1500 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 10...18 Testing: Speed rpm Minimum rack trave: 7.30 : 350 Speed rpm Rack travel in mm : 5.80...6.00 CONSTANT REGULATION Speed rpm : 350...520 TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 14.50...14.60 rpm : 750 2nd speed Rack travel in m: 13.40...13.60 od speed rpm : 1150 Rack travel in m: 14.30...14.50 3rd speed 4th speed : 650 rpm Rack travel in m: 13.10...13.50 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1100 rpm Pressure hPa : 1200 Rack travel mm : 14.50...14.60 Measurement Speed $1/\min : 1100$ 1st pressure hPa : -Rack travel in m: 8.90...9.30 2nd pressure hPa : 215
Rack travel in m: 10.40...10.50 3rd pressure hPa : 475 Rack travel in m: 13.00...13.40 START CUT-OUT

Speed 1/min: 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200

1000 s: (72.5...80.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.30 Speed rpm : 1270...1280

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...175.0 1000 s: (130.0...180.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.80...6.00
Del.quantity cm3/: 17.0...21.0
1000 s: (14.5...23.5)
Spread cm3 : 6.00
1000 s: (9.00)

Remarks:

: C.D.C. # 3921973

Start-of-delivery mark = 5.5° after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet : RVI Edition : 20,03,92 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 0 402 046 340CL Tolerance + - ° : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6P120A320RS525 EP type number : 0 412 026 058 BASIC SETTING Governor Governor design. : RQV300...1050PA955 1st speed rpm : 1050: 0 421 813 856 Governer no. Rack travel in mm : 9.40...9.50 Customer-spec. information Customer : RVI Del.guantity cm3/: 13.8...14.0 Engine : MIDS062045J 100 s: (13.5...14.3) 1st version kW : 160.0 Spread cm3 : 0.5: 2100 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 300.0 Rack travel in mm : 5.3...5.7 Del.quantity cm3/ : 1.5...2.1 Test oil inlet temp. °C : 38...42 100 s: (1.2...2.4) Overflow valve Spread cm3 : 0.8: 1 417 413 025 100 s: (1.2) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 019 assembly GUIDE SLEEVE TRAVEL rpm : 1050 1st speed Opening travel mm : 8.00...8.20 pressure, bar : 207...210 rpm : 300 2nd speed travel mm : 1.10...1.50 Orifice plate 3rd speed rpm : 430 diameter mm : 0,8 travel mm : 3.40...4.00 4th speed : 1400 rpm travel mm : 11.00...12.00 Test Lines : 1 680 750 067 GUIDE SLEEVE POSITION Outside diameter Control-Lever position x Wall thickness Degree: -1 x Length mm : 6.00x1.50x1000 rpm : 1075 Speed Rack travel in mm: 15.20...17.80 (A) Injection pump setting values Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP Set equal delivery quant. per values 1st version Speed rpm : 1050 BEGINNING OF DELIVERY : 138.0...140.0 Del.quantity

1000 : (135.0...143.0)

Test pressure, bar: 25...27

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 298...306

Testing:

1st rack travel in: 8.40

rpm : 1130...1140 Speed

2nd rack travel in: 4.20

rpm : 1190...1220 Speed

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 244...252

Testing:

Speed rpm Minimum rack trave: 7.40 rpm : 300 Speed

Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

Speed rpm : 310...430

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700

Del.quantity cm3/: 126.0...134.0 1000 s: (123.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.40

rpm : 1130...1140 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

LOW IDLE

rpm : 300

Rack travel in mm : -4.20...-4.40

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

J05

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Phasing : 0-60-120-180-240-300 Test sheet : UNI Tolerance + - ° : 0.50 (0.75) Edition : 9.7.1993 Replaces Time to cyl. no. : 1 Test oil : ISO-4113 BASIC SETTING Combination no. : 0 402 046 346 1st speed rpm: 700 Injection pump Pump designation : PES6P110A720RS530 Rack travel in mm: 9.80...9.90 EP type number : 0 412 016 075 Governor Del.quantity cm3/: 11.6...11.8 Governor design. : RQV450...1050PA1016 100 s: (11.4...12.1) -2 Governer no. : 0 421 813 967 Spread cm3 : 0.4Customer-spec. information Customer : IVECO-UNIC 100 s: (0.7) rpm : 450.0 Engine : 8365.25.532 2nd speed Rack travel in mm : 5.4...5.8 Del.quantity cm3/ : 1.7...2.2 TEST BENCH REQUIREMENTS 100 s: (1.4...2.4) Test oil Spread cm3 : 0.4inlet temp. °C : 38...42 100 s: (0.7) Overflow valve (B) Setting of injection pump : 1 417 413 025 with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL rpm : 1095 1st speed Test nozzle holder : 6.70...6.90 travel mm assembly : 0 681 343 009 : 450 2nd speed rpm : 0.70...1.10 travel mm Opening 3rd speed man : 700 : 172...175 pressure, bar : 3.30...3.90 travel mm 4th speed : 850 rpm : 4.80...5.20 travel mm Test lines : 1 680 750 015 : 1650 5th speed rom travel mm : 11.00...12.00 Outside diameter x Wall thickness GUIDE SLEEVE POSITION : 6.00x1.50x600 x Length mm Control-lever position Degree: -1 (A) Injection pump setting values rpm : 1430 Insp. values in parentheses Rack travel in mm : 8.50...11.10 Set equal delivery quant. per values FULL LOAD DELIV. AT FULL LOAD STOP BEGINNING OF DELIVERY 1st version Test pressure, bar: 25...27 Speed rpm : 700 Aneroid pressure h: 700 Anerous F. Del.quantity 1000

: 116.5...118.5

: 4.00 1000 : (7.50)

Spread

cm3

: (114.0...121.0)

Prestroke mm

: 2.00...2.10

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-

: (1.95...2.15)

RATED SPEED

1st version Control lever

position degrees: 96...106

Testina:

1st rack travel in: 8.80

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

Speed rpm : 1195...1225

4th rack travel in: 1400

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 66...74

Testina:

Speed rpm Minimum rack trave: 7.70

: 450 Speed riom

Rack travel in mm : 5.50...5.70

Rack travel in mm : 2.00

Speed rem : 510...570

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed ripm Pressure hPa : 700

Rack travel mm : 9.80...9.90

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.10...9.30

2nd pressure hPa : 400

Rack travel in m: 9.60...9.70

3rd pressure hPa : 380

Rack travel in m: 9.30...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 1050 Del.quantity cm3/ : 113.0...117.0 1000 s: (110.0...120.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 97.0...99.0 1000 s: (94.5...101.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.80

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 195.0...225.0 1900 s: (191.0...229.0)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Note remarks

Test sheet : UNI 8,3 a 4 Edition : 23.10.92 Replaces : 09.92 Test oil : ISO-4113

Combination no. : 0 402 046 348

Injection pump

Pump designation : PES6P110A720RS530 EP type number : 0 412 016 075

Governor

Governor design. : RQV450...1100PA1016

: 0 421 813 969 Governer no.

Customer-spec. information Customer : IVECO-UNIC

Engine : 8365,25,533

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 13.8...14.0

100 s: (13.5...14.2)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 450.02nd speed Rack travel in mm: 5.9...6.3 Del.quantity cm3/: 1.7...2.2 100 s: (1.4...2.4)

Spread cm3 : 0.4

100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1145

: 6.80...7.00 travel mm : 450

2nd speed rpm travel mm

: 1.20...1.60 3rd speed : 700 rpm

travel mm : 3.30...3.90

rpm : 950 4th speed

: 5.50...5.90 travel mm

5th speed : 1650 rpm

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1460

Rack travel in mm : 8.80...11.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700 Aneroid pressure h: 700

Del.quantity : 150.0...142.5)

Spread : 4.00 cm3

: (7.50) 1000

RATED SPEED

1st version

Control lever

position degrees: 96...104

Testina:

1st rack travel in: 10.10

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1260...1290 4th rack travel in: 1450

mom : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 66...74

Testina:

Spead rpm

Minimum rack trave: 9.60 rpm : 450 Speed

Rack travel in mm : 6.00...6.20

CONSTANT REGULATION

rpm : 470...550 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 700 Speed rpm Pressure

Rack travel mm : 11.10...11.20

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 10.10...10.30

2nd pressure hPa : 480

Rack travel in m: 10.80...10.90

3rd pressure hPa : 440

Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 rpm : 1100 Speed

Del.quantity cm3/: 133.0...137.0

1000 s: (130.0...140.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 111.0...113.0 1000 s: (108.5...115.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 185.0...215.0

1000 s: (181.0...219.0)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Note remarks

Test sheet : UNI 8,1 b : 18.12.91 Edition : 11.91 Replaces Test oil : ISO-4113

: 0 402 046 350 Combination no.

Injection pump

Pump designation : PES6P110A720RS531 EP type number : 0 412 016 076

Governor

Governor design. : RQV300...1100PA1016

Governer no. : 0 421 813 972

Customer-spec. information Customer : IVECO-UNIC

Engine : 8361,25,510

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 Prestroke mm : (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm: 10.30...10.40

Del.quantity cm3/: 12.0...12.2

100 s: (11.7...12.4)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 300.02nd speed Rack travel in mm: 6.0...6.4 Del.quantity cm3/ : 1.3...1.8 100 s: (1.0...2.0)

Spread cm3 : 0.4100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1145 : 8.30...8.50 travel mm

2nd speed rpm : 300

travel mm : 0.80...1.20

3rd speed rpm : 500

travel mm : 2.50...3.10

4th speed rpm : 750

travel mm : 4.50...4.90

5th speed : 1350 rpm

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1240

Rack travel in mm : 8.00...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 700

: 120.0...122.0 Del.quantity

1000 : (117.5...124.5) Spread

: 4.00 cm3 1000 : (7.50) RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 9.30

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1205...1235 4th rack travel in: 1350

rpm : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 63...71

Testing:

Speed **MCL**

Minimum rack trave: 7.70 rpm : 300

Rack travel in mm : 6.10...6.30

CONSTANT REGULATION

Speed rpm : 370...490

Aneroid/Altitude Compensator Test

1st version

Settina

Speed : 500 rom hPa : 700 Pressure

: 10.30...10.40 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.90...9.20

2nd pressure hPa : 465

Rack travel in m: 9.90...10.00

3rd pressure hPa : 430

Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 1100

Del.quantity cm3/: 96.0...98.0 1000 s: (93.5...100.5)

BREAKAWAY

1st version

J11

1mm rack travel less than

full load rack tr: 9.30

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 215.0...245.0 1000 s: (211.0...249.0)

LOW IDLE

Speed mar : 300

Rack travel in mm : 6.00...6.40 Del.quantity cm3/: 13.0...18.0

1000 s: (10.5...20.5)

cm3 : 4.50 Spread

1000 s: (7.50)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Note remarks

Test sheet : SSC 10,5 a Edition : 18.12.91

Replaces : 5.84 Test oil : ISO-4113

Combination no. : 0 402 046 738

Injection pump

Pump designation: PES6P120A320RS3092-1

EP type number : 0 412 026 710

Governor

Governor design. : RQV320...1300PA654

Governer no. : 0 421 813 358

Customer-spec. information Customer : SSCM

Engine : 6LC 520 S2

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm 8,0:

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1280

Rack travel in mm : 12.30...12.40

Del.quantity cm3/: 19.8...20.0

100 s: (19.5...20.3)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 320.02nd speed Rack travel in mm: 7.9...8.1 Del.quantity cm3/: 2.0...2.6

100 s: (1.7...2.9)

Spread cm3 : 0.8 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.30...1.50 travel mm

2nd speed rpm : 1000

: 5.70...6.00 travel mm

rpm : 1300 3rd speed

: 8.30...8.50 travel mo

GUIDE SLEEVE POSITION Control-Lever position

> Degree: -1 rpm : 1305

Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1280 Speed

: 198.0...200.0 Del.quantity

1000 : (195.0..,203.0)

cm3 Spread : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 61...69

Testing:

1st rack travel in: 12.30

Speed rpm : 1325...1335

2nd rack travel in: 4.00

Speed rpm : 1415...1445 4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 13...21

Testina:

Speed rpm : 100 Minimum rack trave: 9.50

Speed rpm : 320 Rack travel in mm : 7.90...8.10

CONSTANT REGULATION

rpm : 350...460 Speed

START CUT-OUT

1/min : 240 (260) Speed

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.30

rpm : 1325...1335 Speed

LOW IDLE

Speed rpm : 320 Rack travel in mm : 7.90...8.10 Del.quantity cm3/: 20.0...26.0 1000 s: (17.0...29.0)

Spread cm3 : 8.00

1000 s: (12.00)

.

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.50...3.60 Prestroke mm : (3.45...3.65) Rack travel in mm : 9.00...12.00 Note remarks : 1-5- 3- 6- 2- 4 Firing order Test sheet : RVI 12,0 f2 : 03.12.92 Edition : 02.91 Replaces. Test oil : ISO-4113 Phasina : 0-60-120-180-240-300 Combination no. : 0 402 046 791 Tolerance + - ° : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6P120A320RS3139 EP type number : 0 412 026 718 rpm: 600 ist speed Governor Governor design. : RQV275...950PA728-4 Rack travel in mm: 13.30...13.40 : 0 421 813 678 Governer no. Del.quantity cm3/: 21.2...21.4 Customer-spec. information Customer : RVT 100 s: (20.9...21.7) Engine : MIDR 063540 H Spread cm3 : 0.51st version kW : 264.0 100 s: (0.9) Rated speed : 1900 rpm : 275.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm : 5.6...6.0 Del.quantity cm3/: 2.4...2.8 100 s: (2.1...3.1) Test oil inlet temp. °C : 38...42 Spread cm3 : 0.8100 s: (1.2) Overflow valve : 1 417 413 025 (B) Setting of injection pump with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed rpm : 275 : 1 688 901 101 : 1.30...1.70 assembly travel mm 2nd speed : 450 rom Openina : 3.30...3.70 travel mm pressure, bar : 207...210 3rd speed : 800 rpm : 5.60...6.00 travel mm Orifice plate 4th speed : 950 man diameter mm : 0,8 : 6.70...6.90 travel mm : 1500 5th speed rpm : 11.00...12.00 travel mm Test lines : 1 680 750 089 GUIDE SLEEVE POSITION Outside diameter Control-lever position x Wall thickness Degree: -1 : 8.00x2.50x600 x Lenath mm rpm : 1125 Speed Rack travel in mm : 15.20...17.80 (A) Injection pump setting values Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP Set equal delivery quant. per values 1st version Speed rpm : 600 BEGINNING OF DELIVERY Aneroid pressure h: 1000 Del.quantity : 272.0...217.0)

Test pressure, bar: 25...27

cm3 : 5.00 Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 59...67

Testing:

1st rack travel in: 12.30

rpm : 1015...1025 Speed

2nd rack travel in: 4.00

Speed rpm : 1160...1190

4th rack travel in: 1250

pm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 9...17

Testing:

: 200 Speed COM Minimum rack trave: 7.60 : 275 rom

Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

Speed rpm : 295...400

Aneroid/Altitude Compensator Test

1st version

Setting

rom : 500 hPa : 1000 Speed LOW Pressure

: 13.30...13.40 Rack travel mm

Measurement

Speed $1/\min: 500$

1st pressure hPa : -

Rack travel in m: 9.10...9.50

2nd pressure hPa : 200

Rack travel in m: 9.90...10.00

3rd pressure hPa : 660

Rack travel in m: 12.20...12.50

START CUT-OUT

1/min: 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 Speed rpm : 950

Del.quantity cm3/: 210.0...216.0

1000 s: (207.0...219.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 118.0...120.0 1000 s: (115.0...123.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.30

rpm : 1015...1025 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 150.0...180.0

1000 s: (146.0...184.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.60...6.00
Del.quantity cm3/ : 24.0...28.0
1000 s: (21.0...31.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

Start-of-delivery mark 9° cam angle

after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI 9,8 f : 21.01.93 Edition Replaces : 10.92 Test oil : ISO-4113 Combination no. : 0 402 046 798 Injection pump Pump designation : PES6P120A320RS3139 EP type number : 0 412 026 718 Governor Governor design. : RQ275/1050PA893 Governer no. : 0 421 801 442 Customer-spec. information Customer : RVI Engine : MIDR 062045 M 1st version kW : 236.0 : 2100 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test Lines : 1 680 750 075 Outside diameter x Wall thickness

x Length mm : 8.00X2.50X1000 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 J16

Prestroke mm : 3.50...3.60 : (3.45...3.65) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed nom: 600 Rack travel in mm : 11.90...12.00 Del.quantity cm3/: 22.1...22.3 100 s: (21.8...22.6) cm3 : 0.5Spread 100 s: (0.9) 2nd speed rpm : 275.0 Rack travel in mm : 5.4...5.9 Del.quantity cm3/ : 2.6...3.0 100 s: (2.3...3.3) cm3 : 0.8Spread 100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 600 Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 600 Aneroid pressure h: 1000 Del.quantity : 221.0...223.0 1000 : (218.0...226.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Setting point: Speed rpm : 600 Rack travel in mm: 20.0 Testing: 1st rack travel in: 10.90

rpm : 1105...1120

Speed

2nd rack travel in: 4.00

Speed rpm : 1200...1230 4th rack travel in: 1350

Speed nom : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

: 275 man Rack travel in mm: 6.3

Testing:

Speed rpm : 175 Minimum rack trave: 7.10 rpm : 275 Speed

Rack travel in mm : 5.50...5.70

Rack travel in mm: 2.00 Speed mgn : 340...380

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 600

Rack travel in m: 11.30...17.50

2nd speed rpm : 1050

Rack travel in m: 11.30...11.60

Aneroid/Altitude Compensator Test

1st version

Setting : 500 Speed mom hPa : 1000 Pressure

Rack travel mm : 11.90...12.00

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.70...9.10

2nd pressure hPa : 360

Rack travel in m: 11.10...11.20

3rd pressure hPa : 160

Rack travel in m: 9.50...9.90

START CUT-OUT

1/min: 195 (215) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 rpm : 1050 Speed

Del.quantity cm3/: 214.0...220.0

1000 s: (211.0...223.0)

Aneroid pressure h: -: 500 Speed rpm

Del.quantity cm3/: 107.0...109.0

1000 s: (104.0...112.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

rpm : 1105...1120 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...165.0 1000 s: (131.0...169.0)

LOW IDLE

rpm : 275 Speed

Rack travel in mm : 5.40...5.90 Del.quantity cm3/ : 26.0...30.0

1000 s: (23.0...33.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.40...4.50 : (4.35...4.55)
Rack travel in mm : 19.00...21.00 Note remarks Firing order Test sheet : MB 11,7 j 2 Edition : 31.07.92 Replaces : 08.91 : ISO-4113 Test oil Phasina : 0 402 046 825 Combination no. Tolerance + - * Injection pump Pump designation : PES6P110A720LS3282 EP type number : 0 412 016 736 BASIC SETTING Governor Governor design. : RQ300/1100PA800-2 1st speed : 0 421 801 593 Governer no. Customer-spec, information Customer : MERCEDES-BENZ Engine : 0M447 h 1st version kW : 157.0 Spread Rated speed : 2200 TEST BENCH REQUIREMENTS 2nd speed Test oil inlet temp. °C : 38...42 Overflow valve Spread : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder assembly : 0 681 343 009 Openina | 1st version : 172...175 pressure, bar Speed Del.quantity Test Lines : 1 680 750 015 Spread cm3 Outside diameter x Wall thickness RATED SPEED : 6.00X1.50X600 x Length mm 1st version (A) Injection pump setting values Insp. values in parentheses Setting point: Set equal delivery quant. Speed mari per values

: 6-2-4-1-5-3 : 0-60-120-180-240-300 : 0.50 (0.75) Time to cyl. no. : 6 rpm: 1100 Rack travel in mm: 13.10...13.20 Del.quantity cm3/: 13.6...13.8 100 s: (13.3...14.0) cm3 : 0.4100 s: (0.8) rpm : 300.0Rack travel in mm: 9.0...9.3 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) cm3 : 0.4100 s: (0.8) GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 600 Rack travel in mm : 13.50...14.50 FULL LOAD DELIV. AT FULL LOAD STOP rpm : 1100 : 136.0...138.0 1000 : (133.5...140.5) : 4.00 1000 : (8.00): 600 Rack travel in mm: 14.0 Testing: 1st rack travel in: 12.10 rpm : 1140...1150 Speed

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

2nd rack travel in: 4.00

Speed rpm: 1190...1220 4th rack travel in: 1250 Speed rpm: 0.00...2.40

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.3

Testing:

rpm : 200 Speed Minimum rack trave: 8.80

Speed rpm : 300 Rack travel in mm : 7.20...7.40

Rack travel in mm : 2.00

Speed rpm : 370...410

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 600 Speed

Del.quantity cm3/: 113.0...116.0 1000 s: (110.0...119.0)

Spread cm3 : 5.00

1000 s: (9.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.10

Speed rpm : 1140...1150

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 11,7 j-3 : 31.07.92 : 08.91 Edition Replaces Test oil : ISO-4113 Combination no. : 0 402 046 826 Injection pump Pump designation : PES6P110A720LS3282 : 0 412 016 736 EP type number Governor Governor design. : RQ300/1100PA786-2 Governer no. : 0 421 801 576 Customer-spec. information Customer : MERCEDES-BENZ : 0M447 h Engine : 157.0 1st version kW Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00X1.50X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Prestroke mm : 4.40...4.50 : (4.35...4.55) Rack travel in mm : 19.00...21.00 : 6-2-4-1-5-3 Firing order Phasina : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 6 BASIC SETTING 1st speed rom: 1100 Rack travel in mm : 13.00...13.10 Del.quantity cm3/: 13.6...13.8 100 s: (13.3...14.0) Spread cm3 : 0.4100 s: (0.8) 2nd speed rpm : 300.0 Rack travel in mm : 9.0...9.3 Del.quantity cm3/ : 1.4...2.0 100 s: (1.1...2.3) Spread cm3 : 0.4100 s: (0.8) GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 600 Speed Rack travel in mm : 13.50...14.50 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1100 Del.quantity : 136.0...138.0 1000 : (133.5...140.5) : 4.00 Spread cm3 1000 : (8.00) RATED SPEED 1st version Setting point: Speed : 600 marı Rack travel in mm: 14.0 Testing:

1st rack travel in: 12.00

rpm : 1140...1150

Speed

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

2nd rack travel in: 4.00

Speed rpm : 1190...1220 4th rack travel in: 1250

Speed rpm : 0.00...2.40

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.3

Testing:

Speed rpm : 200 Minimum rack trave: 8.80 Speed rpm : 300 Rack travel in mm : 7.20...7.40

Rack travel in mm: 2.00

Speed : 370...410 rom

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 Del.quantity cm3/: 113.0...116.0

1000 s: (110.0...119.0)

cm3 : 5.00 Spread

1000 s: (9.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.00

Speed rpm : 1140...1150

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : RVI 9,8 q Test sheet : 23,10,92 Edition : 08.92 Replaces Test oil : ISO-4113 Combination no. : 0 402 046 827 Injection pump Pump designation : PES6P120A320RS3284 EP type number : 0 412 026 749 Governor Governor design. : RQ275/1050PA999-3 Governer no. : 0 421 801 598 Customer-spec. information Customer : RVI : MIDR/PR 062045 Engine : 186.0 1st version kW : 2100 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 105 assembly **Opening** pressure, bar : 207...210 Orifice plate : 0,8 diameter mm Test lines : 1 680 750 089 Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 J22

Prestroke mm : 3.50...3.60 : (3.45...3.65) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm : 700Rack travel in mm : 10.10...10.20 Del.quantity cm3/: 14.8...15.0 100 s: (14.5...15.3) Spread cm3 : 0.5100 s: (0.9) rpm : 275.0 2nd speed Rack travel in mm : 4.6...5.0 Del.quantity cm3/ : 1.9...2.3 100 s: (1.6.,.2.6) Spread cm3 : 0.8100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -2 Speed rpm : 600 Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 700 Speed Aneroid pressure h: 1000 : 148.0...150.0 1000 : (145.0...153.0) Del.quantity : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Setting point: rpm Rack travel in mm: 20.0 Testina: 1st rack travel in: 9.10 rpm : 1130...1145 Speed

2nd rack travel in: 4.00

rpm : 1200...1230 Speed

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed : 275 rpm Rack travel in mm: 5.3

Testina:

Speed rpm : 200 Minimum rack trave: 6.30

Speed rpm : 275
Rack travel in mm : 4.70...4.90

Rack travel in mm: 2.00 Speed : 320...360 rpm

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 700

Rack travel in m: 10.50...10.60 2nd speed rpm : 1050

Rack travel in m: 10.40...10.60

Aneroid/Altitude Compensator Test

1st version

Settina

Speed : 500 COM Pressure hPa : 1000

Rack travel mm : 10.10...10.20

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 8.00...8.10

2nd pressure hPa : 200

Rack travel in m: 8.50...8.60

3rd pressure hPa : 360

Rack travel in m: 9.40...9.80

START CUT-OUT

Speed 1/min: 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 : 1050 Speed rpm

Del.quantity cm3/: 146.0...152.0

1000 s: (143.0...155.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 79.0...81.0

1000 s: (76.0...84.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10

Speed rpm : 1130...1145

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 155.0...185.0 1000 s: (151.0...189.0)

LOW IDLE

Speed rpm : 275

Rack travel in mm : 4.60...5.00 Del.quantity cm3/: 19.0...23.0

1000 s: (16.0...26.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

Test sheet ; SAK

Edition : 26.06.92

Replaces

Test oil : ISO-4113

Combination no. : 0 402 046 834

Injection pump

Pump designation : PES6P130A320RS3299

: 0 412 036 706 EP type number

Governor

Governor design. : RQV450...1500PA1023

Governer no. : 0 421 813 985

Customer-spec. information

Customer : SEATEK

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 6.00...6.10

: (5.95...6.15)

Rack travel in mm : 10.00...11.00 Firing order : 1-5-3-6-2Tolerance $+ - ^{\circ} : 0.50 (0.75)$

: 0-60-120-180-240-300

BASIC SETTING

Phasing

1st speed rpm: 1500

Rack travel in mm: 10.70...10.80

Del.quantity cm3/: 27.3...27.6

100 s: (27.3...27.6)

Spread cm3 : 0.6

100 s: (1.0)

rpm : 450.02nd speed Rack travel in mm : 3.2...3.6 Del.quantity cm3/ : 2.5...3.3

100 s: (2.1...3.5)

cm3 : 1.0Spread 100 s: (1.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1500 1st speed

travel mm : 8.10...8.30

2nd speed rpm : 450

travel mm : 0.80...1.20

3rd speed rpm : 700

: 2.80...3.40 travel mm

rpm : 1050 4th speed

: 4.60...5.00 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

Speed rpm : 1700 Rack travel in mm : 7.70...10.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1500 Aneroid pressure h: 900

Del.quantity : 273.0...276.0

1000 : (273.0...276.0)

Spread cm3 : 6.00

1000 : (10.00)

RATED SPEED

1st version

Control lever position degrees: 100...108 Testing: 1st rack travel in: 9.70 rom : 1540...1550 Speed 2nd rack travel in: 4.00 Speed rpm : 1640...1670 4th rack travel in: 1750 Speed rpm : 0.09...1.00 LOW IDLE 1 Control Lever position degrees: 65...73 Testing: Speed rpm : 100 Minimum rack trave: 4.90 rpm : 450 Speed Rack travel in mm : 3.30...3.50 CONSTANT REGULATION rpm : 450...550 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 700 rom Pressure hPa : 900 Rack travel mm : 10.70...10.80 Measurement 1/min: 700 Speed 1st pressure hPa : -Rack travel in m: 7.00...7.20 2nd pressure hPa : 450 Rack travel in m: 8.70...8.80 3rd pressure hPa : 390 Rack travel in m: 7.90...8.10 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: rpm : 700 Speed Del.quantity cm3/: 157.0...160.0 1000 s: (153.5...163.5)

Speed rpm : 1540...1550
Remarks: :
APPLICATION

Navy

J25

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70

Note remarks

Test sheet : IHC

: 15.06.93 Edition Replaces : 02.93 Test oil : ISO-4113

Combination no. : 0 402 046 839

Injection pump

Pump designation : PES6P100A320LS3306

EP type number : 0 412 006 703

Governor

Governor design. : RQV350...1200PA1042

-1K

: 0 421 815 322 Governer no.

Customer-spec. information Customer : NAVISTAR

Engine : DTA-466

1st version kW : 172.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 058

Inlet press., bar: 2.80

Overflow

quantity min. 1/h: 240...260

Test nozzle holder

assembly : 1 688 901 101

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.95...3.05

(2.90...3.10)

Rack travel in mm : 14.00...17.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 800

Rack travel in mm : 13.90...14.00

Del.quantity cm3/: 15.5...15.7

100 s: (15.3...15.9)

Spread cm3 : 0.8

100 s: (1.2)

2nd speed rpm : 350.0 Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 1.5...1.9

100 s: (1.3...2.2)

Spread cm3 : 0.4100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.80...2.00

2nd speed : 500 rom

: 3.50...3.90 travel mm

3rd speed : 800 rpm travel mm

: 6.20...6.60

4th speed rpm : 1250

travel mm : 9.30...9.50

5th speed rpm : 1400

travel mm : 10.50...11.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1440 Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rom : 800 Aneroid pressure h: 1200 : 155.5...157.5 Del.quantity 1000 : (153.5...159.5) cm3 : 8.00 Spread 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 116...124 Testing: 1st rack travel in: 13.30 rpm : 1240...1270 Speed 2nd rack travel in: 4.00 rpm : 1415...1425 Speed 4th rack travel in: 1550 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 74...82 Testing: Speed rpm : 275 Minimum rack trave: 7.70 Speed Speed rpm Rack travel in mm : 5.90...6.10 CONSTANT REGULATION Speed rpm : 350...520 TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version rpm : 800 1st speed Rack travel in m: 13.90...14.00 rpm : 1200 2nd speed Rack travel in m: 14.10...14.30 3rd speed rpm : 650 Rack travel in m: 13.30...13.70 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1200 man hPa : 1200 Pressure : 14.10...14.30 Rack travel mm Measurement 1/min: 1200 Speed 1st pressure hPa : -

Rack travel in m: 10.30...10.70 2nd pressure hPa : 310 Rack travel in m: 11.20...11.30 3rd pressure hPa : 655 Rack travel in m: 13.00...13.40 START CUT-OUT 1/min: 280 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 1200 Speed Del.quantity cm3/: 162.5...166.5 1000 s: (160.5...168.5) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 800 Del.quantity cm3/: 70.5...74.5 1000 s: (68.5...76.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.30 rpm : 1240...1270 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 120.0...160.0 1000 s: (115.0...165.0) Rack travel in mm : 20.00...21.00 LOW IDLE Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm3/ : 15.5...19.5
1000 s: (13.0...22.0) cm3 : 4.00Spread 1000 s: (6.50) Remarks: : NAVISTAR #1819914c91 Bow dimension: Stiding-sleeve position = 37.0 mm Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Delivery-valve spring pre-tension = 6.30...6.40 mm.
Permissible alteration from 6.00...6.70 mm

Note remarks

Test sheet

: IHC Edition : 15.06.93 Replaces : 04.93

Test oil : ISO-4113

Combination no. : 0 402 046 841

Injection pump

Pump designation : PES6P100A320LS3309

EP type number : 0 412 006 704

Governor

Governor design. : RQV350...1300PA1042

-4K

: D 421 815 328 Governer no.

Customer-spec, information Customer : NAVISTAR

: DTA-408 Engine

1st version kW : 171.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 058

Inlet press., bar: 2.80

Overflow

quantity min. 1/h: 175...195

Test nozzle holder

: 1 688 901 101 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 2.95...3.05 Prestroke mm

: (2.90...3.10)

Rack travel in mm : 14.00...17.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 14.4...14.6

100 s: (14.2...14.8)

Spread cm3 : 0.8

100 s: (1.2)

2nd speed rpm : 350.0Rack travel in mm : 5.1...5.3

Del.quantity cm3/: 1.4...1.8 100 s: (1.2...2.1)

cm3 : 0.4Spread 100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 350 1st speed

: 1.60...2.00 travel mm

rpm : 500 2nd speed

: 3.80...4.20 travel mm

rpm : 800 3rd speed

: 5.80...6.20 travel mm

rpm : 13004th speed

: 8.90...9.10 travel mm

rpm : 1500 5th speed

travel mm : 10.40...10.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rom : 900 Aneroid pressure h: 1200

Del.quantity : 144.5...146.5

1000 : (142.5...148.5)

Spread cm3: 8.00 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 61...69 Testing: 1st rack travel in: 11.90 Speed rpm : 1340...1370 2nd rack travel in: 4.00 rpm : 1510...1520 Speed 4th rack travel in: 1650 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 16...24 Testing: Speed rom : 275 Minimum rack trave: 6.50 : 350 rpm Rack travel in mm : 5.10...5.30 CONSTANT REGULATION rpm : 350...520 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed : 900 rom Rack travel in m: 12.50...12.60 2nd speed rpm : 1300 Rack travel in m: 12.90...13.10 3rd speed rpm : 700 Rack travel in m: 11.80...12.20 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1300 rom hPa : 1200 Pressure Rack travel mm : 12.90...13.10 Measurement

1/min: 1300

Rack travel in m: 9.30...9.70 2nd pressure hPa : 300 Rack travel in m: 10.50...10.60

Rack travel in m: 11.80...12.20

1st pressure hPa : -

3rd pressure hPa : 670

START CUT-OUT 1/min: 280 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 1300 Speed Del.quantity cm3/: 147.5...151.5 1000 s: (145.5...153.5) Spread cm3: 8.00 1000 s: (12.0) Aneroid pressure h: rpm : 900 Speed Del.quantity cm3/: 75.5...79.5 1000 s: (73.5...81.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.90 rpm : 1340...1370 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 120.0...160.0 1000 s: (115.0...165.0) Rack travel in mm : 20.00...21.00 LOW IDLE rpm : 350 Speed Rack travel in mm : 5.10...5.30 Del.quantity cm3/: 14.5...18.5 1000 s: (12.0...21.0) cm3 : 4.00Spread 1000 s: (6.50) Remarks: : NAVISTAR #1819917C91 Limit shutoff stop screw to 1.0 mm. Bow dimension: Sliding-sleeve position = 37.0 mm Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Speed

Note remarks

Test sheet : NAV : 15.06.93 Edition Replaces : 04.93 Test oil : ISO-4113

Combination no. : 0 402 046 842

Injection pump

Pump designation : PES6P100A320LS3309

EP type number : 0 412 006 704

Governor

Governor design. : RQV350...1300PA1042

-5K

: 0 421 815 329 Governer no.

Customer-spec. information Customer : NAVISTAR

Engine : DTA-408

1st version kW : 156.5 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 058

Inlet press., bar: 2.80

Overflow

quantity min. 1/h: 240...260

Test nozzle holder

: 1 688 901 101 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0.6

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 2.95...3.05 : (2.90...3.10) Prestroke mm

Rack travel in mm : 14.00...15.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 14.3...14.5

100 s: (14.1...14.7)

Spread cm3 : 0.8

100 s: (1.2)

2nd speed rpm : 350.0 Rack travel in mm: 5.1...5.3 Del.quantity cm3/: 1.4...1.8

100 s: (1.2...2.1) cm3 : 0.4Spread

100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.60...2.00

2nd speed 500 rom

: 3.80...4.20 travel mm

3rd speed rpm : 800

: 5.80...6.20 travel mm

4th speed : 1300 rpm

: 8.90...9.10 travel mm

5th speed : 1500 rpm

travel mm : 10.40...10.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900 Aneroid pressure h: 1200

Del.quantity : 143.5...145.5

1000 : (141.5...147.5)

Spread cm3 : 8.00 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 59...67 Testing: 1st rack travel in: 11.80 rpm : 1340...1370 Speed 2nd rack travel in: 4.00 Speed rpm : 1510...1520 4th rack travel in: 1650 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 16...24 Testing: Speed rpm : 275 Minimum rack trave: 6.00 : 350 Speed riom Rack travel in mm : 5.10...5.30 CONSTANT REGULATION rom : 350...520 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version : 900 1st speed rpm Rack travel in m: 12.40...12.50 : 1300 2rvd speed rpm Rack travel in m: 12.80...13.00 3rd speed rpm : 700 Rack travel in m: 11.80...12.20 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1300 rpm Pressure hPa : 1200 Rack travel mm : 12.80...13.00 Measurement 1/min: 1300 Speed 1st pressure hPa : -Rack travel in m: 9.30...9.70 2nd pressure hPa : 290 Rack travel in m: 10.40...10.50 3rd pressure hPa : 700

Rack travel in m: 11.80...12.20

START CUT-OUT 1/min: 280 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 1300 Del.quantity cm3/: 149.0...153.0 1000 s: (147.0...155.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: rpm : 900 Speed Del.quantity cm3/: 75.5...79.5 1000 s: (73.5...81.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.80 Speed rpm : 1340...1370 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 120.0...160.0 1000 s: (115.0...165.0) Rack travel in mm : 20.00...21.00 LOW IDLE Speed rpm : 350
Rack travel in mm : 5.10...5.30
Del.quantity cm3/ : 14.5...18.5
1000 s: (12.0...21.0) Spread cm3 : 4.001000 s: (6.50) Remarks: : NAVISTAR #1819918C91 Limit shutoff stop screw to 1.0 mm. Bow dimension: Sliding-sleeve position = 37.0 mmSetting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Delivery-valve spring pre-tension =

Permissible alteration from 6.00...6.70

6.30...6.40 mm.

Note remarks

Test sheet : IHC
Edition : 15.06.93
Replaces : 02.93
Test oil : ISO-4113

Combination no. : 0 402 046 845

Injection pump

Pump designation : PES6P100A320LS3309 EP type number : 0 412 006 704

Governor

Governor design. : RQV350...1300PA1042

-6K

Governer no. : 0 421 815 330

Customer—spec. information Customer : NAVISTAR

Engine : DTA-408

1st version kW : 142.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 058

Inlet press., bar : 2.80

Overflow

quantity min. 1/h: 240...260

Test nozzle holder

assembly : 1 688 901 101

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.6

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.95...3.05

: (2.90...3.10) Rack travel in mm : 14.00...17.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 13.2...13.4

100 s: (13.0...13.6)

Spread cm3:0.8

100 s: (1.2)

2nd speed rpm : 350.0 Rack travel in mm : 5.1...5.3 Del.quantity cm3/ : 1.4...1.8 100 s: (1.2...2.1)

Spread cm3: 0.4

100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.60...2.00 d speed rpm : 500

3rd speed rpm: 800

travel mm : 5.80...6.20

4th speed rpm: 1300

travel mm : 8.90...9.10

5th speed rpm: 1500

travel mm : 10.40...10.80

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 1500

Rack travel in mm : 8.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 900 Speed Aneroid pressure h: 1200 : 132.5...134.5 Del.quantity 1000 : (130.5...136.5) : 8.00 Spread cm3 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 112...120 Testing: 1st rack travel in: 11.40 rpm : 1340...1370 Speed 2nd rack travel in: 4.00 Speed rpm : 1500...1510 4th rack travel in: 1650 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 71...79 Testing: Speed rpm : 275 Minimum rack trave: 6.70 : 350 rpm Rack travel in mm : 5.10...5.30 CONSTANT REGULATION Speed rpm : 350...520 TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version rpm : 900 1st speed Rack travel in m: 12.10...12.20 rpm : 1300 2nd speed Rack travel in m: 12.40...12.60 3rd speed : 700 riom Rack travel in m: 11.40...11.80 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1300 man hPa : 1200 Pressure : 12.40...12.60 Rack travel mm Measurement

1/min: 1300

1st pressure hPa : -

Rack travel in m: 9.40...9.80 2nd pressure hPa : 250 Rack travel in m: 10.30...10.40 100 3rd pressure hPa Rack travel in r 1.60...12.00 START CUT-OUT Speed 1/min: 280 (290) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 1300Speed Del.quantity cm3/: 139.0...143.0 1000 s: (137.0...145.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: rpm : 900 Speed Del.quantity cm3/: 76.5...80.5 1000 s: (74.5...82.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.40 rpm : 1340...1370 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 120.0...160.0 1000 s: (115.0...165.0) Rack travel in mm: 20.00...21.00 LOW IDLE Speed rpm : 350
Rack travel in mm : 5.10...5.30
Del.quantity cm3/ : 14.5...18.5
1000 s: (12.0...21.0) cm3 : 4.00 Spread 1000 s: (6.50) Remarks: : NAVISTAR #1819922C91 Bow dimension: Sliding-sleeve position = 37.0 mm Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Speed

Delivery-valve spring pre-tension = 6.30...6.40 mm.
Permissible alteration from 6.00...6.70 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.75...2.85 : (2.70...2.90) Prestroke mm Note remarks Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Test sheet : DEE : 15.06.93 Edition Replaces : 04.93 Test oil : ISO-4113 Phasina : 0-60-120-180-240-300 Combination no. : 0 402 076 059 Tolerance + - ° : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6P110A720RS370 : 0 412 016 052 EP type number BASIC SETTING Governor Governor design. : RSV500...900POA455-5 1st speed rpm: 900 Governer no. : D 421 833 400 Rack travel in mm: 10.20...10.30 Customer-spec. information Customer : JOHN DEERE Del.quantity cm3/: 12.3...12.5 Engine : 6619T F01 100 s: (12.1...12.7) 1st version kW : 200.0 Spread cm3 : 0.4: 1800 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 500.0 2nd speed Test oil Rack travel in mm: 5.6...5.8 inlet temp. °C : 38...42 Del.quantity cm3/: 1.5...1.9 100 s: (1.3...2.2) Overflow valve cm3 : 0.6Spread : 1 457 413 010 100 s: (0.8) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 assembly : 1 688 901 101 rpm : 800 Rack travel in mm : 0.30...0.70 Openina pressure, bar : 207...210 Governor spring pre-tension Click setting x :? Orifice plate diameter mm : 0,6 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 015 rpm : 900 Speed : 123.5...125.5 Del.quantity 1000 : (121.5...127.5) Outside diameter x Wall thickness Spread cm3 : 4.00 : 6.00x3.00x600 1000 : (6.50) x Length mm (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values Control lever position degrees: 44...52 BEGINNING OF DELIVERY Test pressure, bar: 27...29 Testing:

1st rack travel in: 9.20

rpm : 945...955 Speed 2nd rack travel in: 4.00

Speed : 1040...1050 rom

3rd rack travel in: 4.00

Speed rpm : 1045...1075

4th rack travel in: 1200

Speed rom : 0.30...1.40

LOW IDLE 1 Control Lever

position degrees: 30...38

Setting point w/out bumper spring

rpm : 500 Rack travel in mm: 5.2

Testina:

: 100 Speed rpm Minimum rack trave: 19.00 Speed rpm : 500 Rack travel in mm : 5.60...5.80

TORQUE CONTROL

Torque control curve - 1st version

rpm : 900 1st speed

Rack travel in m: 10.20...10.30

2nd speed rpm : 650

Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

: 650 Speed rom

Del.quantity cm3/: 138.5...142.5

1000 s: (136.5...144.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

rpm : 945...955 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 180.0...200.0

1000 s: (175.0...205.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500

Rack travel in mm : 5.60...5.80 Del.quantity cm3/: 15.5...19.5 1000 s: (13.0...22.0)

Spread cm3 : 6.001000 s: (8,00)

Remarks:

: JOHN DEERE # AR88760

Starting/full-load transition speed from holding magnet = 450 1/min.

Start-of-delivery mark is at 15° angular displacement of the cam after start of delivery at cylinder 1 with control-rod travel 9.00...12.00 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DEE Edition : 15.06.93 Replaces : 01.93 Test oil : ISO-4113 Combination no. : 0 402 076 745 Injection pump Pump designation : PES6P120A720RS3203 EP type number : 0 412 026 728 Governor Governor design. : RSV625...1100P2A534 -9 Governer no. : 0 421 833 372 Customer-spec. information Customer : JOHN DEERE Engine : 6076 HZ 031 1st version kW : 205.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 101 **Opening** pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x3.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY Test pressure, bar: 27...29 K11

Prestroke mm : 3.55...3.65 : (3.50...3.70) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance $+ - \cdot : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 12.70...12.80 Del.quantity cm3/: 17.4...17.6 100 s: (17.2...17.8) cm3 : 0.4Spread 100 s: (0.6) 2nd speed rpm : 625.0 Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 2.7...3.1 100 s: (2.4...3.3) cm3 : 0.6 Spread 100 s: (0.8) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...0.70 Governor spring pre-tension Click setting x : 4.50 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1100 Aneroid pressure h: 1200

Del.quantity : 174.5...176.5 1000 : (172.5...178.5) : 4.00 Spread cm3 1000 : (6.50)

1st version Control lever

RATED SPEED

position degrees: 42...50

Testing: 1st rack travel in: 11.70 Speed rpm : 1140...1150 2nd rack travel in: 4.00 Speed rpm : 1205...1215 3rd rack travel in: 4.00 Speed rpm : 1195...1225 4th rack travel in: 1350 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 22...30 Setting point w/out bumper spring rpm : 625 Rack travel in mm : 5.0 Testing: Speed rpm : 100 Minimum rack trave: 19.00 : 625 rpm Rack travel in mm : 5.40...5.60 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 12.70...12.80 2nd speed rpm : 700 Rack travel in m: 13.30...13.50 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 hPa : 1200 rom Pressure : 13.30...13.50 Rack travel mm Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 11.60...11.80 2nd pressure hPa : 645 Rack travel in m: 12.10...12.20 3rd pressure hPa : 840 Rack travel in m: 12.90...13.30 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200

rpm : 700 Del.quantity cm3/: 187.0...191.0

rpm : 800

Aneroid pressure h: -

1000 s: (185.0...193.0)

Del.quantity cm3/: 143.0...147.0 1000 s: (141.0...149.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.70 Speed rpm : 1140...1150 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 90.0...110.0 1000 s: (85.0...115.0) Rack travel in mm : 20.00...21.00 LOW IDLE Speed rpm : 625
Rack travel in mm : 5.40...5.60
Del.quantity cm3/: 27.0...31.0
1000 s: (24.5...33.5) Spread cm3 : 6.00 1000 s: (8.00) Remarks: : JOHN DEERE # RE47399 Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer. Starting/full-load transition speed from holding magnet = 450 1/min. Start-cf-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

Speed

Speed

Note remarks

Test sheet : DEE

: 15.06.93 Edition Replaces : 01.93 Test oil : ISO-4113

Combination no. : 0 402 076 754

Injection pump

Pump designation : PES6P120A720RS3203

EP type number : 0 412 026 728

Governor

Governor design. : RSV400...1100P2A534

-14

: 0 421 833 405 Governer no.

Customer-spec. information Customer : JOHN DEERE

Engine : 6076 HF030

1st version kW : 205.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x3.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65

: (3.50...3.70)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 16.8...17.0

100 s: (16.6...17.2)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 400.0 Rack travel in mm : 5.2...5.4 Del.quantity cm3/ : 2.0...2.4

100 s: (1.8...2.6)

Spread cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION Control-Lever position

Degree: -3

Speed rpm : 800 Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 1200

Del.quantity : 708.0...172.0)

cm3 : 4.00 Spread

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 36...44

Testing:

1st rack travel in: 11.50

Speed rpm : 1140...1150

2nd rack travel in: 4.00

rpm : 1185...1195 Speed

3rd rack travel in: 4.00

Speed rpm : 1185...1215 4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 12...20

Setting point w/out bumper spring

rom : 400 Rack travel in mm: 4.8

Testina:

Speed rpm : 100

Minimum rack trave: 19.00

rpm : 400 Speed

Rack travel in mm : 5.20...5.40

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.50...12.60 2nd speed rpm : 750

Rack travel in m: 12.90...13.10

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed non : 500

hPa : 1200 Pressure

Rack travel mm : 12.90...13.10

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.50...10.70 2nd pressure hPa : 560 Rack travel in m: 11.10...11.20

3rd pressure hPa : 770

Rack travel in m: 12.20...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

rpm : 750 Speed

Del.quantity cm3/: 174.5...178.5

1000 s: (172.5...180.5)

Aneroid pressure h: -

Speed : 800 rpm

Del.quantity cm3/: 117.5...121.5

1000 s: (114.5...124.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 90.0...110.0 1000 s: (85.0...115.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.20...5.40 Del.quantity cm3/: 20.0...24.0 1000 s: (18.0...26.0)

Spread cm3 : 6.00

1000 s: (8.00)

Remarks:

: JOHN DEERE # RE47410

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Starting/full-load transition speed from holding magnet = 450 1/min.

Start-cf-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : NAV Edition : 15.06.93 Replaces : 04.93 Test oil : ISO-4113 Combination no. : 0 402 076 755 Injection pump Pump designation : PES6P110A320LS3318 EP type number : 0 412 016 741 Governor Governor design. : RSV350...750P4A561 : 0 421 833 406 Governer no. Customer-spec. information Customer : NAVISTAR Engine : DTA-466 1st version kW : 185.0 : 1500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 058 Inlet press., bar: 2.80 Overflow quantity min. 1/h: 175...195 Test nozzle holder : 1 688 901 101 assembly Opening | : 207...210 pressure, bar

Orifice plate diameter mm : 0,6

Test Lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x3.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 27...29 : 2.95...3.05 Prestroke mm : (2.90...3.10) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 700 Rack travel in mm : 12.50...12.60 Del.quantity cm3/: 20.8...21.0 100 s: (20.6...21.2) Spread cm3 : 0.8 100 s: (1.2) rpm : 350.0 2nd speed Rack travel in mm: 5.5...5.7 bel.quantity cm3/ : 3.8...4.2 100 s: (3.5...4.4) cm3 : 0.4Spread 100 s: (0.6) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 2.50FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 700 Speed : 208.5...210.5 Del.quantity 1000 : (206.5...212.5) Spread cm3: 8.00 1000 : (12.00) RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing: 1st rack travel in: 11.50 Speed rpm : 765...775 2nd rack travel in: 4.00 rpm : 800...810 Speed 3rd rack travel in: 4.00 rpm : 805...815 Speed 4th rack travel in: 900 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring rpm : 350 Rack travel in mm : 5.6 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 5.50...5.70 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.50 Speed rpm : 765...775 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 135.0...175.0 1000 s: (130.0...180.0) Rack travel in mm : 20.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 5.50...5.70 Del.quantity cm3/ : 38.0...42.0 1000 s: (35.5...44.5) Spread cm3 : 4.001000 s: (6.50) Remarks:

: NAVISTAR #1820271C91

APPLICATION

Generator

Note remarks

Test sheet Edition

: NAV

: 15.06.93

Replaces Test oil : 04.93 : ISO-4113

Combination no.

: 0 402 076 755A

Injection pump

Pump designation : PES6P110A320LS3318

EP type number

: 0 412 016 741

Governor

Governor design. : RSV350...750P4A561

Governer no.

: 0 421 833 406

Cust. part no.

: 1820271091A

Customer-spec, information Customer

: NAVISTAR

Engine

: DTA-466

1st version kW

: 208.0

Rated speed

: 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 058

Inlet press., bar: 2.80

Overflow

quantity min. 1/h: 175...195

Test nozzle holder

assembly

: 1 688 901 101

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,6

Test lines

: 1 680 750 015

Outside diameter

x Wall thickness

x Length mm

: 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm

: 2.95...3.05 : (2.90...3.10)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasina

: 0-60-120-180-240-300

Tolerance + - *

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 850

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 20.4...20.6

100 s: (20.2...20.8)

Spread

cm3 : 0.8

100 s: (1.2)

2nd speed

rpm : 350.0

Rack travel in mm: 5.5...5.7

Del.quantity cm3/: 3.8...4.2

100 s: (3.5...4.4)

Spread

cm3 : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30, ..0.70

Governor spring pre-tension Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 850

Del.quantity

: 204.5...206.5

1000 : (202.5...208.5)

Spread

cm3 : 8.00

1000 : (12.00)

RATED SPEED 1st version Control Lever position degrees: 45...53 Testing: 1st rack travel in: 11.50 rpm : 915...925 Speed 2nd rack travel in: 4.00 Speed rpm : 940...950 3rd rack travel in: 4.00 rom : 945...955 Speed 4th rack travel in: 1050 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring rpm : 350 Rack travel in mm : 5.6 Testina: : 100 Speed rpm Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 5.50...5.70 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.50 rpm : 915...925 Speed STARTING FUEL DELIVERY Speed : 100 rom Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0) Rack travel in mm : 20.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 38.0...42.0 1000 s: (35.5...44.5) Spread cm3 : 4.001000 s: (6.50) **APPLICATION** Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : NAV : 15.06.93 Edition : 04.93 Replaces Test oil : ISO-4113 Combination no. : 0 402 076 756 Injection pump : 0 412 006 706 EP type number Governor : 0 421 833 407 Governer no. Customer-spec. information Customer : NAVISTAR : DTA-466 Engine : 204.0 1st version kW : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 058 Inlet press., bar : 2.80 Overflow quantity min. 1/h: 175...195 Test nozzle holder : 1 688 901 101 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6

Pump designation : PES6P100A320LS3317 Governor design. : RSV350...1200P2A562 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x3.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 27...29 : 2.95...3.05 Prestroke mm : (2.90...3.10) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance $+ - \circ : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1200 Rack travel in mm : 14.60...14.70 Del.quantity cm3/: 17.5...17.7 100 s: (17.3...17.9) Spread cm3 : 0.8 100 s: (1.2) 2nd speed rpm : 350.0 Rack travel in mm : 4.8...5.0 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.4Spread 100 s: (0.6) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm: 0.30...0.70 Governor spring pre-tension Click setting x : 4.00FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1200 Aneroid pressure h: 1500 : 175.5...177.5 1000 : (173.5...179.5) Del.quantity : 8.00 Spread cm3 1000 : (12.00) RATED SPEED 1st version

Control lever

position degrees: 53...61

Testing:

1st rack travel in: 13.60

rpm : 1245...1255 Speed

2nd rack travel in: 4.00

rpm : 1315...1325 Speed

3rd rack travel in: 4.00

Speed rpm : 1320...1330 4th rack travel in: 1400

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 14...22

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm: 4.9

Testing:

Speed : 100 mon Minimum rack trave: 19.00

rom : 350

Rack travel in mm : 4.80...5.00

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm Pressure hPa : 1500

Rack travel mm : 14.60...14.70

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 7.50...7.90

2nd pressure hPa : 290

Rack travel in m: 9.50...9.60

3rd pressure hPa : 700

Rack travel in m: 12.80...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 67.5...71.5 1000 s: (65.5...73.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.60

Speed rpm : 1245...1255

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 125.0...165.0

1000 s: (120.0...170.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 4.80...5.00

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

Spread cm3 : 4.00

1000 s: (6.50)

Remarks:

Delivery-valve spring pre-tension = 9091

6.30...6.40 mm.

Permissible alteration from 6.00...6.70

Note remarks

Test sheet

: NAV

Edition RepLaces : 15.06.93

: 04.93

Test oil

: ISO-4113

Combination no. : 0 402 076 756A

Injection pump

Pump designation : PES6P100A320LS3317

EP type number Governor

: 0 412 006 706

Governor design. : RSV350...1200P2A562

Governer no.

: 0 421 833 407

Cust. part no. : 1820269091A

Customer-spec. information Customer

: NAVISTAR

Engine

: DTA-466

1st version kW

: 185.0

Rated speed

: 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 058

Inlet press., bar: 2.80

Overflow

quantity min. 1/h: 175...195

Test nozzle holder

assembly

: 1 688 901 101

Openina |

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,6

Test lines

: 1 680 750 015

Outside diameter

x Wall thickness

x Lenath mm

: 6.00x3.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 27...29

Prestroke mm

: 2.95...3.05

Rack travel in nm : 9.00...12.00

: (2.90...3.10)

Firing order

: 1-5-3-6-2-4

Phasing

: 0 -60-120-180-240-309

Tolerance + - *

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1200

Rack travel in mm: 13.90...14.00

Del.quantity cm3/: 16.0...16.2

100 s: (15.8...16.4)

Spread

cm3 : 0.8

100 s: (1.2)

rpm : 350.0

Rack travel in mm: 4.8...5.0

Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

Spread

2nd speed

cm3 : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rom : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1200

Aneroid pressure h: 1500

Del.quantity

: 160.0...162.0

cm3

1000 : (158.0...164.0)

: 8.00

Spread

1000 : (12.00)

RATED SPEED

1st version Control Lever

position degrees: 53...61

Testing:

1st rack travel in: 12.90

rpm : 1250...1260 Speed

2nd rack travel in: 4.00

rpm : 1315...1325 Speed

3rd rack travel in: 4.00

Speed rpm: 1320...1330 4th rack travel in: 1400

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 14...22

Setting point w/out bumper spring

rpm : 350 Speed Rack travel in mm: 4.9

Testina:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 350 Speed

Rack travel in mm : 4.80...5.00

Aneroid/Altitude Compensator Test

1st version

Settina

rpm : 500 hPa : 1500 Speed rpm Pressure

Rack travel mm : 13.90...14.00

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 7.50...7.90

2nd pressure hPa : 270

Rack travel in m: 9.30...9.40

3rd pressure hPa : 640

Rack travel in m: 12.30...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -Speed rpm : 500

Del.quantity cm3/: 67.5...71.5

1000 s: (65.5...73.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.90

rpm : 1250...1260 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 125.0...165.0

1000 s: (120.0...170.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed : 350 rom

Rack travel in mm : 4.80...5.00

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 4.00Spread

1000 s: (6.50)

Delivery-valve spring pre-tension = 6.30...6.40 mm. :

Permissible alteration from 6.00...6.70

Note remarks

Test sheet

: NAV

Edition Replaces

: 15.06.93 : 04.93

Test oil

: ISO-4113

Combination no.

: 0 402 076 756B

Injection pump

Pump designation : PES6P100A320LS3317

EP type number

: 0 412 006 706

Governor

Governor design. : RSV350...1200P2A562

Governer no.

: 0 421 833 407

Cust. part no.

: 1820269091B

Customer-spec. information

Customer

: NAVISTAR

Engine

: DTA-466

1st version kW

: 156.0

Rated speed

: 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 058

Inlet press., bar: 2.80

Overflow

quantity min. 1/h: 175...195

Test nozzle holder

assembly : 1 688 901 101

Openina

pressure, bar

Orifice plate

: 207...210

diameter mm

: 0,6

Test lines

: 1 680 750 015

Outside diameter

x Wall thickness

x Length mm

: 6.00X3.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm

: 2.95...3.05

: (2.90...3.10)

Firing order

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4

Phasing

: 0-50-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1200

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 14.7...14.9

100 s: (14.5...15.1)

cm3 : 0.8

100 s: (1.2)

rpm : 350.0 2nd speed

Rack travel in mm: 4.8...5.0

Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

Spread

Speed

Spread

cm3 : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION Control-Lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1200

Aneroid pressure h: 1500

Del.quantity

: 147.0...149.0 1000 : (145.0...151.0)

cm3

: 8.00

1000 : (12.00)

Spread

RATED SPEED

1st version Control lever

position degrees: 53...61

Testing:

1st rack travel in: 12.40

rpm : 1255...1265 Speed

2nd rack travel in: 4.00

rpm : 1315...1325 Speed

3rd rack travel in: 4.00 Speed rpm: 1320...1330 4th rack travel in: 1400

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 14...22

Setting point w/out bumper spring

: 350 Speed rpm Rack travel in mm: 4.9

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

rpm Speed : 350

Rack travel in mm : 4.90...5.00

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 500 rom Pressure hPa : 1500

Rack travel mm : 13.40...13.50

Measurement

Speed $1/\min : 500$

1st pressure hPa : -

Rack travel in m: 7.50...7.90

2nd pressure hPa : 260

Rack travel in m: 9.20...9.30

3rd pressure hPa : 600

Rack travel in m: 12.00...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/: 67.5...71.5

1000 s: (65.5...73.5)

BRE KAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40

Speed rpm : 1255...1265

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 125.0...165.0

1000 s: (120.0...170.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 4.80...5.00

Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

Spread cm3 : 4.00

1000 s: (6.50)

Delivery-valve spring pre-tension =

6.30...6.40 mm.

Permissible alteration from 6.00...6.70

Note remarks

Test sheet : NAV

: 15.06.93 Edition Replaces : 04.93

Test oil : ISO-4113

Combination no. : 0 402 076 756c

Injection pump

Pump designation : PES6P100A320LS3317

: 0 412 006 706 EP type number

Governor

Governor design. : RSV350...1200P2A562

: 0 421 833 407 Governer no.

Cust. part no. : 1820269C91C

Customer-spec. information Customer : NAVISTAR

Engine : DTA-466

1st version kW : 145.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 058

Inlet press. bar: 2.80

Overflow

quantity min. 1/h: 175...195

Test nozzle holder

assembly : 1 688 901 101

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X3.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05

: (2.90...3.10) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 12.80...12.90

Del.quantity cm3/: 13.5...13.7

100 s: (13.3...13.9)

Spread cm3 : 0.8

100 s: (1.2)

rpm : 350.0 2nd speed Rack travel in mm: 4.8...5.0 Del.guantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.4Spread 100 s: (0.6)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rom : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed Aneroid pressure h: 1500

: 135.0...137.0 Del.quantity

1000 : (133.0...139.0)

Spread cm3 : 8.00 1000 : (12.00) RATED SPEED

1st version Control Lever

position degrees: 53...61

Testina:

1st rack travel in: 11.80

: 1260...1270 Speed rom

2nd rack travel in: 4.00

rpm : 1315...1325 Speed

3rd rack travel in: 4.00

Speed rpm : 1320...1330 4th rack travel in: 1400

Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever

position degrees: 14...22

Setting point w/out bumper spring

Speed : 350 rom

Rack travel in mm: 4.9

Testing:

Speed : 100 man

Minimum rack trave: 19.00 rpm : 350 Speed

Rack travel in mm : 4.80...5.00

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 500 rpm Pressure hPa : 1500

Rack travel mm : 12.80...12.90

Measurement

Speed $1/\min : 500$

1st pressure hPa : -

Rack travel in m: 7.50...7.90

2nd pressure hPa : 240

Rack travel in m: 9.00...9.10

3rd pressure hPa : 530

Rack travel in m: 11.40...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 67.5...71.5

1000 s: (65.5...73.5)

BREAKAWAY

1st version

1mm rack travel Less than

full load rack tr: 11.80

Speed rpm : 1260...1270

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 125.0...165.0 1000 s: (120.0...170.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 4.80...5.00

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

Spread cm3 : 4.00

1000 s: (6.50)

Delivery-valve spring pre-tension =

6.30...6.40 mm.

Permissible alteration from 6.00...6.70

BOSCH INJ. PLMP TEST SPECIFICATIONS Note remarks

Test sheet : NAV Edition : 15.06.93

Replaces

Test oil : ISO-4113

Combination no. : 0 402 076 760

Injection pump

Pump designation : PES6P100A320LS3317 EP type number : 0 412 006 706

Governor

Governor design: : RSV415...1100P2A570

Governer no. : 0 421 833 420

Customer-spec. information Customer : NAVISTAR

Engine : DT-531

1st version kW : 145.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 058

Inlet press., bar: 2.80

Overflow

quantity min. 1/h: 250...270

Test nozzle holder

assembly : 1 688 901 101

Openina .

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

: 6.00x3.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.95...3.05 Prestroke mm

: (2.90...3.10) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm: 12.40...12.50

Del.quantity cm3/: 12.8...13.0

100 s: (12.6...13.2)

Spread cm3 : 0.8

100 s: (1.2)

rpm : 415.0 2nd speed Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 2.0...2.4 100 s: (1.8...2.7)

Spread cm3 : 0.4100 s: (0.6)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm : 1100 Aneroid pressure h: 1200

: 128.0...130.0 Del.quantity 1000 : (126.0...132.0)

Spread : 8.00 cm3

1000 : (12.00)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Testina:

1st rack travel in: 11.40

Speed rpm : 1145...1155

2nd rack travel in: 4.00

rpm : 1195...1205 Speed

3rd rack travel in: 4.00

rpm : 1200...1219 Speed

4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 16...24

Setting point w/out bumper spring

rom : 415

Rack travel in mm: 5.0

Testing:

rpm : 100 Speed

Minimum rack trave: 19.00 rpm : 415 Speed

Rack travel in mm : 4.90...5.10

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 500 mon

hPa : 1200 Pressure

Rack travel mm : 13.10...13.20

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.00...8.40

2nd pressure hPa : 280

Rack travel in m: 9.40...9.50

3rd pressure hPa : 520

Rack travel in m: 11.40...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 74.5...78.5

1000 s: (72.5...80.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

Speed rpm : 1145...1155

STARTING FUEL DELIVERY

LOW IDLE

rpm : 415 Speed

Rack travel in mm: 4.90...5.10

Del.quantity cm3/: 20.5...24.5 1000 s: (18.0...27.0)

cm3 : 4.00 Spread

1000 s: (6.50)

Remarks:

Delivery-valve spring pre-tension = 4091

6.30...6.40 mm.

Permissible alteration from 6.00...6.70

mm

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 27...29 Note remarks : 2.95...3.05 Prestroke mm : (2.90...3.10) Test sheet Rack travel in mm : 9.00...12.00 : NAV Edition : 02.07.93 Firing order : 1-5-3-6-2-4 Replaces Test oil : ISO-4113 Combination no. : 0 402 076 761 Phasing : 0-60-120-180-240-300 Phasing Injection pump Tolerance + - ° : 0.50 (0.75) Pump designation : PES6P100A320LS3317 EP type number : 0 412 006 706 Time to cyl. no. : 1 Governor Governor design. : RSV415...1100P2A571 BASIC SETTING : 0 421 833 421 Governer no. ist speed rpm: 1100 Customer-spec. information : NAVISTAR Customer Rack travel in mm : 13.10...13.20 Engine : DT-531 Del.quantity cm3/: 14.4...14.6 1st version kW : 161.0 100 s: (14.2...14.8) Rated speed : 2200 cm3 : 0.8Spread TEST BENCH REQUIREMENTS 100 s: (1.2) Test oil 2nd speed rpm : 415.0 Rack travel in mm : 4.9...5.1 inlet temp. °C : 38...42 Overflow valve Del.quantity cm3/: 2.0...2.4 : 1 417 413 058 100 s: (1.8...2.7) Spread cm3 : 0.4Inlet press., bar: 2.80 100 s: (0.6) Overflow GUIDE SLEEVE POSITION quantity min. 1/h: 250...270 Control-lever position Dearce: -3 008 : man Test nozzle holder assembly : 1 688 901 101 Rack travel in mm : 0.30...0.70 Opening Governor spring pre-tension pressure, bar : 207...210 Click setting x : 5.00Lube oil : 6 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 015 Speed rpm : 1100 Aneroid pressure h: 1200 Outside diameter Del.quantity : 144.0...146.0 x Wall thickness 1000 : (142.0...148.0) : 6.00x3.00x600 x Length mm Spread cm3 : 8.00 1000 : (12.00) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. per values ___ 1st version Control lever

position degrees: 48...56

BEGINNING OF DELIVERY

Testing:

1st rack travel in: 12.10

rpm : 1145...1155 Speed

2nd rack travel in: 4.00

rpm : 1195...1205 Speed

3rd rack travel in: 4.00

rpm : 1200...1210 Speed

4th rack travel in: 1300

rom : 0.30...1.40Speed

LOW IDLE 1

Control Lever

position degrees: 17...25

Setting point w/out bumper spring

: 415 man

Rack travel in mm: 5.0

Testing:

Speed rom : 100

Minimum rack trave: 19.00

rpm : 415 Speed

Rack travel in mm : 4.90...5.10

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm Pressure hPa : 1200

: 13.10...13.20 Rack travel mm

Measurement

Speed $1/\min : 500$

1st pressure hPa : -

Rack travel in m: 8.00...8.40

2nd pressure hPa : 300

Rack travel in m: 9.40...9.50

3rd pressure hPa : 590

Rack travel in m: 11.80...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 74.5...78.5 1000 s: (72.5...80.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.10

L02

Speed : 1145...1155 rom

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 125.0...165.0

1000 s: (120.0...170.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed : 415 rpm

Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 20.5...24.5

1000 s: (18.0...27.0)

Spread cm3 : 4.00

1000 s: (6.50)

Remarks:

: NAVISTAR #1817593C91

Delivery-valve spring pre-tension = 6.30...6.40 mm.

Permissible alteration from 6.00...6.70

APPLICATION

Tractor (tractor engines)

Note remarks

Test sheet : MB 22,0 c Edition : 26.02.93 : 06.92 Replaces : ISO-4113 Test oil

Combination no. : 0 402 640 817

Injection pump

Pump designation : PE12P12OA520LS7826 EP type number : 0 412 620 817

Governor

Governor design. : RQV350...1150PA870-4

: 0 421 813 717 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM 444 LA

: 736.0 1st version kW : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Overflow

Test nozzle holder

assembly : 1 688 901 019

Openina

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter x Wall thickness

x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

inlet temp. °C

quantity min. 1/h: 150...170

pressure, bar : 207...210

: 8.00x2.50x1000

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50 : (4.35...4.55)

Rack travel in mm : 19.00...21.00 Firing order : 12- 1- 5- 9- 8- 3-

4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-

180-225-240-285-300-

345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 15.10...15.20

Del.quantity cm3/: 30.9...31.1

100 s: (30.6...31.4)

cm3 : 0.6Spread

100 s: (1.0)

rpm : 350.02nd speed Rack travel in mm: 5.3...5.9 Del.guantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

: 1.30...1.80 travel mm rpm : 600 2nd speed

travel mm : 3.30...3.80

3rd speed : 960 rpm

: 5.30...5.80 travel mm

: 1206

4th speed rpm travel mm

: 7.90...8.40 : 1291 5th speed rpm

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1275 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP	f 1st version
4	Setting
1st version -	Speed rpm : 500
Speed rpm: 1150	Pressure hPa : -
Aneroid pressure h: 1800	Rack travel mm : 8.308.60
Del.quantity : 309.0311.0	
1000 : (306.0314.0)	- Measurement
Spread cm3 : 6.00 -	- Speed 1/min: 500
1000 : (10.00)	
2nd version	1st pressure hPa : 400
Speed rpm: 1150	Rack travel in m: 10.0010.10
Aneroid pressure h: 1800	- 2nd pressure hPa : 1050
Del.quantity cm3/: 309.0311.0	Rack travel in m: 14.1014.30
1000 s: (306.0314.0)	- 2th version
Spread cm3 : 6.00 -	Setting
1000 s: (10.0)	- Speed rpm : 500
•	Pressure hPa :-
RATED SPEED -	Rack travel in mm : 8.208.50
	Lance of the second of the sec
1st version -	Measurement
Control Lever	Speed rpm : 500
position degrees: 113121	, p
(200.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0	1st pressure hPa : 300
Testing:	Rack travel in m: 9.809.90
1st rack travel in: 14.20	- 2nd pressure hPa : 1100
Speed rpm : 11901200 -	Rack travel in m: 14.014.2
2nd rack travel in: 4.00	1 14.01.14.2
Speed rpm : 12701300	START CUT-OUT
4th rack travel in: 1350	21/AC. CO1 001
Speed rpm : 0.001.00 -	- Speed 1/min: 310 (330)
	- Speed 17mm. 516 (5567
2nd version	FUEL DELIVERY CHARACTERISTICS
Control lever	
position degrees: 113121	_
	1st version
Testing:	Aneroid pressure h: 1800
1st rack travel in: 14.20	- Speed rpm : 750
Speed rpm : 11901200 -	Del.quantity cm3/: 303.0313.0
2nd rack travel in: 4.00	1000 s: (300.0316.0)
Speed rpm : 12701300 -	- Spread cm3 : 10.00
4th rack travel in: 1350	1000 s: (15.0)
Speed rpm : 0.001.00	- Aneroid pressure h: 1800
	Speed rpm : 1150
LOW IDLE 1	Del.quantity cm3/: 240.0243.0 *
Control Lever	1000 s: (237.0246.0)
position degrees: 6270	- Spread cm3 : 10.00
position degrees. de	1000 s: (15.0)
Testing:	- Aneroid pressure h: -
Speed rpm : 250	- Speed rpm : 500
Minimum rack trave: 7.30	Del.quantity cm3/: 128.0130.0
Speed rpm : 350	1000 s: (125.0133.0)
Rack travel in mm : 5.305.90	1000 3. (127.0199.0)
	- Spread cm3 - 10 00
	- Spread cm3 : 10.00
	- Spread cm3 : 10.00 - 1000 s: (15.0)
CONSTANT REGULATION	- Spread cm3 : 10.00 - 1000 s: (15.0) -
	- Spread cm3 : 10.00 - 1000 s: (15.0) - 2nd version
CONSTANT REGULATION Speed rpm : 350600	- Spread cm3 : 10.00 - 1000 s: (15.0) - 2nd version - Aneroid pressure h: 1800
CONSTANT REGULATION Speed rpm : 350600 Aneroid/Altitude	- Spread cm3 : 10.00 - 1000 s: (15.0) - 2nd version - Aneroid pressure h: 1800 - Speed rpm : 750
CONSTANT REGULATION Speed rpm : 350600	- Spread cm3 : 10.00 - 1000 s: (15.0) - 2nd version - Aneroid pressure h: 1800

cm3 : 10.00 Spread

1000 s: (15.0)

Aneroid pressure h: 1800

Speed rpmin: 1150

Del.quantity cm3/: 240.0...243.0 *

1000 s: (237.0...246.0)

cm3 : 10.00 Spread 1000 s: (15.0)

Aneroid pressure h: -

Speed rpm: 500
Del.quantity cm3/: 128.0...130.0
1000 s: (125.0...133.0)
Spread cm3: 10.00

1000 s: (15.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 14.20

Speed rpm : 1190...1200

2nd version

1mm rack travel less than full load rack tr: 14.20

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 330.0...350.0 1000 s: (326.0...354.0)

Remarks:

Values of version 1 only apply to regulators with LDA spring 2 424 619 162.

* = Set at reduced-delivery stop.

Note remarks

Test sheet : MB 22,0 c 2 : 31.07.92 Edition Replaces : 04.92 Test oil : ISO-4113

Combination no. : 0 402 640 828

Injection pump

Pump designation : PE12P120A520LS7826 : 0 412 620 817 EP type number

Governor

Governor design. : RQV350...1050PA870

-13

Governer no. : 0 421 813 934

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM 444 LA

1st version kW : 620.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.40...4.50 Prestroke mm

: (4.35...4.55) Rack travel in mm : 19.00...21.00

: 12- 1- 5- 9- 8- 3-4- 11- 10- 2- 6- 7 Firing order

Phasing : 0-45-60-105-120-165-

180-225-240-285-300-

345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 14.00...14.10

Del.quantity cm3/: 27.4...27.6

100 s: (27.1...27.9)

Spread cm3 : 0.6

100 s: (1.0)

rpm : 350.0 2nd speed Rack travel in mm: 5.3...5.9

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8 Spread

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 350 1st speed

travel mm : 1.30...1.80

rpm : 570 2nd speed

: 3.30...3.80 travel mm

rpm : 900 3rd speed

: 5.40...5.90 travel mm

rpm : 1107 4th speed

: 7.80...8.30 travel mm

rpm : 1204 5th speed

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Aneroid pressure h: 1800

Del.quantity : 274.0...276.0 1000 : (271.0...279.0)

Spread : 6.00 cm3 1000 : (10.00)

RATED SPEED

1st version Control lever

position degrees: 114...122

Testina:

1st rack travel in: 13.00

Speed rpm : 1090...1100

2nd rack travel in: 4.00

rpm : 1170...1200 Speed

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 59...67

Testing:

Speed : 250 rpm Minimum rack trave: 7.30 Speed rpm : 350

Rack travel in mm : 5.50...5.70

CONSTANT REGULATION

rpm : 350...600 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm

Pressure hPa : -

Rack travel mm : 8.00...8.30

Measurement

1/min: 500 Speed

1st pressure hPa : 300

Rack travel in m: 9.40...9.50

2nd pressure hPa : 900

Rack travel in m: 12.70...12.90

START CUT-OUT

1/min: 310 (330) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800 : 750 rpm

Del.quantity cm3/: 268.0...272.0

1000 s: (265.0...275.0)

cm3 : 10.00 Spread 1000 s: (15.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 124.0...126.0 1000 s: (121.0...129.0)

cm3 : 10.00Spread

1000 s: (15.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 330.0...350.0

1000 s: (326.0...354.0)

Remarks:

L07

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : SCA Edition : 22.01.93 Replaces Test oil : ISO-4113 Combination no. : 0 402 646 600 Injection pump Pump designation : PE6P120A720RS7022 EP type number : 0 412 626 873 Governor Governor design. -14 : 0 421 814 011 Governer no. Customer-spec. information Customer : SCANIA **Enaine** : DS11 76 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar : 1.50 Test nozzle holder assembly : 1 688 901 104 Openina : 250...253 pressure, bar Orifice plate diameter mm : 0.7 Test lines : 1 680 750 008 : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

: RQV200...1000PA539 Outside diameter x Wall thickness x Length mm BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 4.40...4.50 : (4.35...4.55) 1.08

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 700 Rack travel in mm : 10.90...11.00 Del.quantity cm3/: 16.8...17.0 100 s: (16.5...17.3) Spread cm3 : 0.8100 s: (1.2) rpm : 250.02nd speed Rack travel in mm: 4.6...5.0 Del.quantity cm3/: 1.5...1.9 100 s: (1.2...2.2) Spread cm3 : 0.4100 s: (0.8) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 225 : 1.20...1.60 1st speed travel mm 2rid speed rpm : 350 travel mm : 2.40...3.00 3rd speed rpm : 650 : 4.50...5.10 travel mm 4th speed rpm : 1045 travel mm : 8.40...8.60 rpm : 1150 5th speed : 9.80...10.20 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1050 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 700 Aneroid pressure h: 1500 Del.quantity : 100.0...173.0)

Spread

cm3 : 8.00

1000 : (12.00)

RATED SPEED

1st version Control lever

position degrees: 112...120

Testing:

1st rack travel in: 9.90

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

rpm : 1115...1145 Speed

4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 63...71

Testina:

Speed : 100 rpm Minimum rack trave: 6.20

rpm : 250

Rack travel in mm : 4.60...4.80

Rack travel in mm: 2.00

rpm : 390...450 Speed

Aneroid/Altitude Compensator Test

1st version Setting

Speed

: 500 rpm hPa : 1500 Pressure

Rack travel mm : 10.90...11.00

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.90...10.30

2nd pressure hPa : 390

Rack travel in m: 10.60...10.70

3rd pressure hPa : 340

Rack travel in m: 10.20...10.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500

rpm : 1000

Del.quantity cm3/: 166.0...174.0

1000 s: (164.0...176.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 142.0...146.0

1000 s: (140.0...148.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

rom : 100

Rack travel in mm : 9.90...10.30

LOW IDLE

Speed rpm : 250

Rack travel in mm : 4.60...4.80

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders

to 2.9...3.1 mm.

Start-of-delivery setting with ROBO

diaphragm.

Note remarks

Test sheet

: SCA

Edition

: 22.01.93

Replaces

Test oil

: ISO-4113

Combination no.

: 0 402 646 604

Injection pump

Pump designation : PE6P120A720RS7188

EP type number

: 0 412 626 832

Governor

Governor design.

: RQV350...1050PA795

-13

Governer no.

: 0 421 814 017

Customer-spec. information Customer

: SCANIA

Engine

: DS11 Allvary

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 104

Openina

pressure, bar

: 250...253

Orifice plate

diameter mm

: 0,7

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 4.40...4.50

: (4.35...4.55)

Rack travel in mm : 9.00...12.00

Firing order

: 1-5- 3- 6- 2- 4

Phasing

: 0-60-120-180-240-300

Tolerance + - *

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 700

Rack travel in mm : 13.30...13.40

Del.quantity cm3/: 23.5...23.7

100 s: (23.2...24.0)

Spread

cm3 : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 4.6...5.0 Del.quantity cm3/: 2.0...2.6

100 s: (-)

Spread

cm3 : 0.4

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.20...1.60

2nd speed rpm : 650

: 4.10...4.70 travel mm

3rd speed rpm : 1095

travel mm

: 7.30...7.50 rpm : 1240

4th speed

travel mm

: 8,60...9.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1280 Rack travel in mm : 11.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rom : 700

Aneroid pressure h: 1500 Del.quantity

: 235.0...237.0

1000 : (232.0...240.0)

Spread cm3

: 8.00 1000 : (12.00) RATED SPEED

1st version

Control lever

position degrees: 98...106

Testing:

1st rack travel in: 13.10

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

rpm : 1215...1245 Speed

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 68...76

Testing:

Speed rpm : 100

Minimum rack trave: 10.00

: 350 Speed rpm

Rack travel in mm : 4.60...4.80 Rack travel in mm : 2.00

rpm : 375...435 Speed

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rom : 500 Pressure

hPa : 1500

Rack travel mm : 13.30...13.40

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.20...10.60

2nd pressure hPa : 440

Rack travel in m: 12.00...12.10

3rd pressure hPa : 270

Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500

rpm : 1050 Speed

Del.quantity cm3/: 207.0...215.0

1000 s: (205.0...218.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 152.0...154.0 1000 s: (148.0...156.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.10

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 13.30...13.40

LOW IDLE

Speed : 350 rpm

Rack travel in mm : 4.60...4.80

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders

to 2.9...3.1 mm.

Start-of-delivery setting with ROBO

diaphragm.

Note remarks

Test sheet : M

Edition : 27.11.92

Replaces

Test oil : ISO-4113

Combination no. : 0 402 646 791

Injection pump

Pump designation : PE6P120A320LS7864

EP type number : 0 412 626 879

Governor

Governor design. : RQV350...1050PA1052

-1

Governer no. : 0 421 814 041

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M401 LA

1st version kW : 230.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)
Rack travel in mm : 20.00...21.00

Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed ppm: 700

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 22.9...23.1

100 s: (22.6...23.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.5...6.1 Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.00...1.50

2nd speed rpm : 453

travel mm : 2.30...2.80

3rd speed rpm : 770

travel mm : 4.70...5.20

4th speed rpm : 1108

travel mm : 9.40...9.90

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

speed rpm : 1180

Rack travel in mm : 10.40...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 700

Aneroid pressure h: 1000

Del.quantity : 229.0...231.0 1000 : (226.0...234.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 98...106 Testing: 1st rack travel in: 11.70 Speed rpm : 1090...1100 2nd rack travel in: 4.00 rpm : 1145...1175 Speed 4th rack travel in: 1300 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 64...72 Testing: Speed rpm : 250 Minimum rack trave: 8.80 : 350 Speed rpm Rack travel in mm : 5.10...5.30 Rack travel in mm: 2.00 : 430...470 Speed rom CONSTANT REGULATION rpm : 380...500 Speed TORQUE CONTROL Dimension a mm : 0.40 Torque control curve - 1st version rom : 700 1st speed Rack travel in m: 13.00...13.10 2nd speed rpm : 1050 Rack travel in m: 12.60...12.80 3rd speed rpm : 850 Rack travel in m: 12.90...13.10 Aneroid/Altitude Compensator Test 1st version Settina Speed : 500 rom

Pressure hPa : -Rack travel mm : 10.00...10.30

Rack travel in m: 12.40...12.60 START CUT-OUT 1/min : 270 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 1050 Del.quantity cm3/ : 216.0...220.0 1000 s: (213.0...223.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1000 Speed : 1050 rpm Del.quantity cm3/: 162.0...166.0 * 1000 s: (159.0...169.0) Aneroid pressure h: Speed rpm : 500 Del.quantity cm3/ : 134.0...136.0 1000 s: (131.0...139.0) Spread cm3 : 8.00 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.70 Speed rpm : 1090...1100 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0) Remarks: * = Set at reduced-delivery stop.

Measurement

Speed

1/min: 500

Rack travel in m: 10.70...10.80

1st pressure hPa : 300

2nd pressure hPa : 650

Note remarks

Test sheet

: MB : 27,11,92 Edition

Replaces : 10.92 Test oil : ISO-4113

Combination no. : 0 402 646 799

Injection pump

Pump designation: PE6P12OA320LS7852

EP type number : 0 412 626 871

Governor

Governor design. : RQ300/950PA1031-5

Governer no. : 0 421 801 657

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M441 LA

1st version kW : 250.0 : 1900 Rated speed 2nd version kW : 250 : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test Lines

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35)

Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.00...14.10

Del.quantity cm3/: 23.4...23.6

100 s: (23.1...23.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0Rack travel in mm: 5.6...6.2 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 1100

Del.quantity : 234.0...236.0

1000 : (231.0...239.0)

: 5.00 cm3 Spread 1000 : (9.00)

2nd version

Speed rpm : 600 Aneroid pressure h: 1100

Del.quantity cm3/: 234.0...236.0 1000 s: (231.0...239.0) 1st pressure hPa : 250 cm3 : 5.00 Spread Rack travel in m: 11.00...11.10 1000 s: (9.00) 2nd pressure hPa : 550 Rack travel in m: 13.00...13.20 RATED SPEED 2th version Settina 1st version Speed rpm : 500 Pressure hPa Setting point: Rack travel in mm : 10.1...10.4 Speed rpm : 600 Rack travel in mm: 20.0 Measurement Speed : 500 rom Testing: 1st rack travel in: 13.00 1st pressure hPa : 300 Speed rpm : 990...1005 Rack travel in m: 10.8...10.9 2nd rack travel in: 4.00 2nd pressure hPa : 700 rpm : 1070...1100 Speed Rack travel in m: 12.9...13.1 4th rack travel in: 1300 Speed rom : 0.00...1.50START CUT-OUT 2nd version 1/min: 220 (240) Speed Setting point: FUEL DELIVERY CHARACTERISTICS Speed COM Rack travel in mm: 20.0 1st version Testing: Aneroid pressure h: 1100 1st rack travel in: 13.00 : 950 rpm rpm : 990...1005 Speed Del.quantity cm3/: 228.0...232.0 2nd rack travel in: 4.00 1000 s: (225.0...235.0) rpm : 1070...1100 Speed cm3 : 8.00 Spread 4th rack travel in: 1300 1000 s: (12.0) rpm : 0.00...1.50Speed Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 132.0...134.0 LOW IDLE 1 Setting point w/out bumper spring 1000 s: (129,0...137.0) rom : 300 Speed cm3 : 8.00 Spread Rack travel in mm: 5.9 1000 s: (12.0) Testing: 2nd version Speed rpm : 200 Aneroid pressure h: 1100 Minimum rack trave: 8.10 rpm : 950 Speed Del.quantity cm3/: 228.0...232.0 rpm : 300 Rack travel in mm : 5.80...6.00 1000 s: (225.0...235.0) Rack travel in mm: 2.00 Spread cm3 : 8.00 : 380...420 Speed 1000 s: (12.0) rom Aneroid pressure h: -Speed rpmin: 500
Del.quantity cm3/: 132.0...134.0
1000 s: (129.0...137.0) Aneroid/Altitude Compensator Test Spread cm3 : 8.00 1st version 1000 s: (12.0) Setting : 500 Speed man Pressure hPa : -**BREAKAWAY** Rack travel mm : 10,10,..10,40 1st version Measurement 1mm rack travel less than 1/min: 500 Speed

L15

full load rack tr: 13.00 Speed rpm : 990...1005

2nd version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 990...1005

Values of version 1 only apply to regulators with LDA spring 2 424 619 162.

Note remarks

Test sheet

Edition

: 30.04.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 402 546 840

Injection pump

Pump designation: PE6P12DA32OLS7808-11

EP type number

: 0 412 626 851

Governor

Governor design. : RQ325/1050PA762-3

Governer no.

: 0 421 801 381

Customer

Customer-spec. information

: DAIMLER-BENZ

Engine

: 0M441 LA

1st version kW

: 240.0

Rated speed

: 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly

: 1 688 901 019

Opening.

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0.8

Test lines

: 1 680 750 067

Outside diameter

x Wall thickness

x Length mm

: 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 4.00...4.10

: (3.95...4.15)

Rack travel in mm : 20.00...21.00

Firing order

: 6-3-5-2-4-1

Phasing

: 0-45-120-165-240-285

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed

Spread

Spread

rpm: 600

Rack travel in mm : 14.50...14.70

Del.quantity cm3/: 20.9...21.1

100 s: (20.6...21.4)

cm3 : 0.5

100 s: (0.9)

2nd speed

rpm : 325.0

Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed

rpm : 600

Aneroid pressure h: 800 Del.quantity

: 209.0...211.0

cm3

1000 : (206.0...214.0)

Spread

: 5.00 1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600

Rack travel in mm: 20.0

Testing: 1st rack travel in: 14.40 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 rpm : 1195...1225 4th rack travel in: 1300 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 6.5 Testing: Speed man : 100 Minimum rack trave: 8.00 rpm : 325 Speed Rack travel in mm : 6.40...6.60 Rack travel in mm: 2.00 Speed rom : 405...445 TORQUE CONTROL Dimension a mm : 0.30 rpm : 1050 2nd speed Rack travel in m: 15.40...15.60 3rd speed rpm : 800 Rack travel in m: 15.70...15.90 4th speed rpm : 700 Aneroid/Altitude Compensator Test 1st version Settina Speed rpm : 600 Pressure hPa : 800 : 14.50...14.70 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 12.20...12.40 2nd pressure hPa : 450 Rack travel in m: 13.30...13.50 3rd pressure hPa : 900 Rack travel in m: 14.60...14.70 * 4th pressure hPa : 1100 Rack travel in m: 13.30...13.50 5th pressure hPa : -Rack travel in m: 11.30...11.50

1st version Aneroid pressure h: 1300 : 1050 riom Del.quantity cm3/: 231.0...234.0 1000 s: (228.0...237.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1300 Speed rpm : 800 Del.quantity cm3/: 234.0...238.0 1000 s: (231.0...241.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 133.0...135.0 1000 s: (130.0...138.0) Spread cm3 : 8.001000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 14.40

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 190.0...210.0

1000 s: (186.0...214.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Speed

START CUT-OUT

1/min: 245 (265)

FUEL DELIVERY CHARACTERISTICS

Note remarks

Test sheet

Edition : 30.04.92

Replaces :

Test oil : ISO-4113

Combination no. : 0 402 646 843

Injection pump

Pump designation : PE6P120A320LS7808-10

EP type number : 0 412 626 850

Governor

Governor design. : RQV300...1050PA797-2

Governer no. : 0 421 813 614

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 240.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzie holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.90...14.10

Del.quantity cm3/: 21.4...21.6

100 s: (21.1...21.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2 Del.quantity cm3/: 1.3...1.9

100 s: (1.0...2.2)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.40

2nd speed rpm : 600

travel mm : 4.90...5.10

3rd speed rpm: 1075

travel mm : 7.40...7.60

4th speed rpm : 1100

travel mm : 8.00...8.40

5th speed rpm: 1150

travel mm : 9.00...9.40

GUIDE SLEEVE POSITION Control-lever position

ntrol-lever position 1- Degree: -1

peed rpm: 1125

Rack travel in mm : 15.80...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version 3rd pressure hPa : 1050 rpm : 600 Rack travel in m: 14.00...14.10 * Speed Aneroid pressure h: 900 4th pressure hPa : 1150 : 214,0...216.0 Rack travel in m: 14.40...14.60 Del.quantity 1000 : (211.0...219.0) 5th pressure hPa : -: 5.00 Spread cm3 Rack travel in m: 9.50...9.80 1000 : (9.00) START CUT-OUT RATED SPEED 1/min: 220 (240) Speed 1st version Control lever FUEL DELIVERY CHARACTERISTICS position degrees: 121...129 Testing: 1st version 1st rack travel in: 13.80 Aneroid pressure h: 1450 rpm : 1095...1110 rpm : 1050 Speed Del.quantity cm3/: 231.0...234.0 1000 s: (228.0...237.0) 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1300 cm3 : 8.00 Spread rpm : 0.00...1.001000 s: (12.0) Speed Aneroid pressure h: 1450 LOW IDLE 1 Speed man : 800 Del.quantity cm3/: 237.0...241.0 1000 s: (234.0...244.0) Control Lever position degrees: 81...89 cm3 : 8.00 Spread 1000 s: (12.0) Testing: Speed rpm : 200 Minimum rack trave: 7.90 Aneroid pressure h: -Speed man : 500 Del.quantity cm3/: 142.0...144.0 1000 s: (139.0...147.0) rpm : 300 Speed Rack travel in mm : 5.60...6.20 Spread cm3 : 8.00CONSTANT REGULATION 1000 s: (12.0) Speed rpm : 300...450TORQUE CONTROL **BREAKAWAY** Dimension a mm : 0.30 : 1050 2nd speed PON 1st version Rack travel in m: 14.80...15.00 1mm rack travel less than rpm : 800 3rd speed Rack travel in m: 15.00...15.20 4th speed rpm : 700 full load rack tr: 13.80 rpm : 1095...1110 Speed Aneroid/Altitude STARTING FUEL DELIVERY Compensator Test Speed : 100 rpm Del.quantity cm3/: 200.0...220.0 1st version 1000 s: (196.0...224.0) Setting : 600 Speed rpm hPa : 900 Pressure Remarks: Rack travel mm : 13.90...14.10 Measurement * Increase in control-rod travel with Speed 1/min: 600 respect to setting at least 0.1 mm 1st pressure hPa : 300 Rack travel in m: 10.70...10.90 2nd pressure hPa : 550

Rack travel in m: 12.90...13.10

Note remarks

Test sheet : SCA 11,1 r Edition : 16.07.93 Replaces : 06.93 Test oil : ISO-4113

Combination no. : 0 402 646 887

Injection pump

Pump designation : PE6P120A720RS7188 EP type number : 0 412 626 832

Governor

Governor design. : RQV200...950PA725-7

Governer no. : 0 421 813 803

Customer-spec. information Customer : SCANIA

Engine : DSC 11 23

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 2.50

Overflow

quantity min. 1/h: 170...210

Test nozzle holder

assembly : 1 638 901 104

Opening

pressure, bar : 250...253

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.45...4.55

: (4.40...4.60)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

THING Of GET

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.30 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 13.80...13.90

Del.quantity cm3/: 25.1...25.3

100 s: (24.8...25.6)

Spread cm3: 0.8

100 s: (1.2)

2nd speed rpm : 250.0 Rack travel in mm : 4.6...5.0

Del.quantity cm3/: 1.3...1.9

100 s: (1.0...2.2)

Spread cm3 : 0.4 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225

travel mm : 1.20...1.60

2nd speed rpm : 350

travel mm : 2.40...3.00

3rd speed rpm : 650

travel mm : 4.50...5.10

4th speed rpm : 1045

travel mm : 8.40...8.60

5th speed rpm : 1125

travel mm : 9.30...9.70

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 1150

Rack travel in mm : 7.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700 Aneroid pressure h: 1500 Del.quantity : 251.0...256.0)

: 8.00 Spread cm3

1000 : (12.00)

RATED SPEED

1st version Control lever

position degrees: 110...118

Testing:

1st rack travel in: 12.80

rpm : 990...1000 Speed

2nd rack travel in: 4.00

Speed rpm: 1110...1140 4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 60...68

Testing:

rpm : 150 Speed Minimum rack trave: 6.00 Speed rpm : 250 Rack travel in mm : 4.60...4.80

Rack travel in mm: 2.00

rpm : 370...430 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 1500 Speed rom Pressure

: 13.80...13.90 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.20...10.60

2nd pressure hPa : 440

Rack travel in m: 12.00...12.10

3rd pressure hPa : 270 Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500 rpm : 950 Speed

Del.quantity cm3/: 233.0...241.0

1000 s: (231.0...243.0)

Aneroid pressure h: -

Speed rpm

Del.quantity cm3/: 152.0...154.0

1000 s: (149.0...157.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.80

Speed rpm : 990...1000

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 145.0...185.0

1000 s: (141.0...189.0)

Rack travel in mm : 10.20...10.60

LOW IDLE

Speed : 250 rpm

Rack travel in mm : 4.60...4.80

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

Start-of-delivery setting with ROBO diaphragm.

L22

Note remarks

Test sheet : MB

Edition : 30.04.92

Replaces

Test oil : ISO-4113

Combination no. : 0 402 646 897

Injection pump

Pump designation: PE6P120A320LS7808-10

EP type number : 0 412 626 850

Governor

Governor design. : PQ300/950PA762-10

: 0 421 801 511 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M441 LA Engine

1st version kW : 249.0 : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/n: 100...120

Test nozzle holder

assembly : 1 688 901 019

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm: 13.90...14.10

Del.quantity cm3/: 21.4...21.6

100 s: (21.1...21.9)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm: 5.7...6.0 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 900

: 214.0...216.0 Del.quantity

1000 : (211.0...219.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 rpm Rack travel in mm: 20.0

Testing: 1st rack travel in: 13.80 rpm : 990...1005 Speed 2nd rack travel in: 4.00 Speed riom : 1065...1095 4th rack travel in: 1200 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.8 Testing: Speed rpm : 200 Minimum rack trave: 7.70 Speed rpm : 300 Rack travel in mm : 5.70...6.00 Rack travel in mm : 2.00 Speed rpm : 380...420 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 600 Pressure hPa : 900 : 13.90...14.10 Rack travel mm Measurement Speed $1/\min : 600$ 1st pressure hPa : 300 Rack travel in m: 11.00...11.20 2nd pressure hPa : 550 Rack travel in m: 13.10...13.30

3rd pressure hPa : 1100

Rack travel in m: 14.10...14.20

4th pressure hPa : 1200

Rack travel in m: 14.50...14.70 5th pressure hPa : -Rack travel in m: 9.50...9.80 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1350 rpm : 950 Del.quantity cm3/: 241.0...243.0 1000 s: (238.0...246.0) cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: 1350 Speed : 800 rpm Del.quantity cm3/: 241.0...246.0 1000 s: (238.0...249.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -: 500 man Del.quaritity em3/: 145.0...147.0 1000 s: (142.0...150.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.80
Speed rpm : 990...1005
STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 205.0...225.0 1000 s: (201.0...229.0)

Remarks:

L24

Note remarks

Test sheet

: 30.04.92 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 646 901

Injection pump

Pump designation : PE6P120A320LS7808-10

EP type number : 0 412 626 850

Governor

Governor design. : RQV300...950PA797-12

Governer no. : 0 421 813 840

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M441 LA Engine

: 249.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1,50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35) Rack travel in mm : 20.00...21.00

: 6-3-5-2-4-1 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.90...14.10

Del.quantity cm3/: 21.4...21.6

100 s: (21.1...21.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm: 5.7...6.0

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed travel mm : 1.10...1.40

2nd speed rpm : 620

5.00...5.40 travel mm

: 780 3rd speed rpm

: 6.00...6.50 travel mm

4th speed : 1010 rpm

travel mm : 8.30...8.80

5th speed : 1100 mon

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1040 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 600 Ameroid pressure h: 900 Del.quantity : 214.0...216.0 1000 : (211.0...219.0) : 5.00 Spread cm31000 : (9.00) RATED SPEED 1st version Control lever position degrees: 117...125 Testing: 1st rack travel in: 13.80 rpm : 990...1000 2nd rack travel in: 4.00 rpm : 1065...1095 Speed 4th rack travel in: 1200 Speed rpm : 0.00...1.00 LOW IDLE 1 Control Lever position degrees: 80...88 Testing: Speed nom Minimum rack trave: 7.70 Sneed : 300 mc Rack travel in mm : 5.70...6.00 CONSTANT REGULATION Speed rpm : 300...500 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm Pressure hPa : 900 Rack travel mm : 13.90...14.10 Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 11.00...11.20 2nd pressure hPa : 550 Rack travel in m: 13.10...13.30 3rd pressure hPa : 1100 Rack travel in m: 14.10...14.20 4th pressure hPa : 1200 Rack travel in m: 14.50...14.70 5th pressure hPa : -Rack travel in m: 9.50...9.80 START CUT-CUT

Speed 1/min : 220 (240)
FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1350 Speed rpm: 950 Del.quantity cm3/: 241.0...243.0 1000 s: (238.0...246.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1350 Speed rpm : 800 Del.quantity cm3/: 241.0...246.0 1000 s: (238.0...249.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 145.0...147.0 1000 s: (142.0...150.0) Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.80 Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 205.0...225.0 1000 s: (201.0...229.0)

:

Remarks:

L26

BOSCH INJ. PUMP TEST SPECIFICATIONS BEGINNING OF DELIVERY Test pressure, bar: 25...27 Note remarks : 5.50...5.60 Prestroke mm Test sheet : MB : (5.45...5.65) Edition : 30.04.92 Rack travel in mm : 20.00...21.00 Replaces Firing order : 6-3-5-2-4-1 Test oil : ISO-4113 Combination no. : 0 402 646 906 Phasing : 0-60-120-180-240-300 Injection pump Pump designation : PE6P120A320LS7832-10 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ EP type number : 0 412 626 852 Governor Time to cyl. no. : 6 Governor design. : RQ300/1050PA952 Governer no. : 0 421 801 521 BASIC SETTING Customer-spec. information 1st speed rpm: 600 Customer : MERCEDES-BENZ Rack travel in mm : 14.80...15.00 Engine : 0M401 LA Del.quantity cm3/: 22.0...22.2 1st version kW : 228.0 : 2100 Rated speed 100 s: (21.7...22.5) TEST BENCH REQUIREMENTS Spread cm3 : 0.5Test oil 100 s: (0.9) inlet temp. °C : 38...42 2nd speed rpm : 300.0Rack travel in mm: 6.4...7.0 Overflow valve Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5) : 1 417 413 025 Inlet press., bar: 1.50 Spread cm3 : 0.6100 s: (1.0) Overflow quantity min. 1/h: 100...120 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -2 : 1 688 901 019 assembly rpm : 600 Speed Rack travel in mm : 19.20...20.80 **Opening** : 207...210 pressure, bar FULL LOAD DELIV. AT FULL LOAD STOP Orifice plate 1st version diameter mm : 0,8 Speed rpm : 600 Aneroid pressure h: 1000 Del.quantity : 220.0...222.0 Test lines : 1 680 750 067 1000 : (217.0...225.0) : 5.00 Spread cm3 1000 : (9.00) Outside diameter x Wall thickness : 6.00x1.50x1000 x Length mm RATED SPEED

1st version

Speed

Setting point:

Rack travel in mm: 20.0

rpm : 600

(A) Injection pump setting values

per values ____

Insp. values in parentheses Set equal delivery quant. Testing: Speed Speed

1st rack travel in: 13.70

rpm : 1095...1110

2nd rack travel in: 4.00 : 1150...1180 man

4th rack travel in: 1300

Speed rom : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 6.7

Testina:

Speed : 200 rpm Minimum rack trave: 8.70 : 300 rpm

Rack travel in mm : 6.40...7.00

Rack travel in mm : 2.00

: 390...430 Speed man

TORQUE CONTROL

Dimension a mm : 0.35 : 1050 2nd speed rpm

Rack travel in m: 14.70...14.90

rpm : 800 3rd speed

Rack travel in m: 15.20...15.40

Aneroid/Altitude Compensator Test

1st version Settina

: 600 Speed rpm hPa : 1000 Pressure

Rack travel mm : 14.80...15.00

Measurement

1/min: 600 Speed

1st pressure hPa : 300 Rack travel in m: 11.20...11.40

2nd pressure hPa : 550

Rack travel in m: 13.50...13.70

3rd pressure hPa : 1400

Rack travel in m: 14.90...15.00 *

4th pressure hPa : -

Rack travel in m: 9.70...10.00

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600

: 1050 rpm

Del.quantity cm3/: 221.0...224.0

1000 s: (213.0...227.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: 1600 : 800 Speed rpm

Del.quantity cm3/: 235.0...239.0

1000 s: (232.0...242.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 129.0...131.0

1000 s: (126.0...134.0)

cm3 : 8.00 Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.70

: 1095...1110 Speed rom

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 200.0...220.0

1000 s: (196.0...224.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

:

Note remarks

Test sheet

Edition

: 30.04.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 402 646 908

Injection pump

Pump designation : PE6P120A320LS7808-10

EP type number

: 0 412 626 850

Governor

Governor design. : RQ300/950PA932-3

Governer no.

: 0 421 801 528

Customer-spec. information

Customer

: MERCEDES-BENZ

Engine

: 0M441 LA

1st version kW

: 249.0

Rated speed

: 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly

: 1 688 901 019

Opening |

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,8

Test lines

: 1 680 750 067

Outside diameter

x Wall thickness

x Length mm

: 6.00x1.50x1000

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order

: 6-3-5-2-4-1

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed

rom: 600

Rack travel in mm : 13.90...14.10

Del.quantity cm3/: 21.4...21.6

100 s: (21.1...21.9)

Spread

cm3 : 0.5

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm: 5.7...6.0

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread

cm3 : 0.6100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 600

Aneroid pressure h: 900

Del.quantity

: 214.0...216.0 1000 : (211.0...219.0)

cm3

: 5.00

Spread

1000 : (9.00)

RATED SPEED

1st version

Speed

Setting point:

rpm

: 600

Rack travel in mm: 20.0

MO1

Testina: 1st rack travel in: 13.80 rpm : 990...1005 Speed 2nd rack travel in: 4.00 rpm : 1065...1095 Speed 4th rack travel in: 1200 rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring rom : 300 Rack travel in mm: 5.8 Testing: Speed rpm : 200 Minimum rack trave: 7.70 Rack travel in mm: 5.70...6.00
Rack travel in mm: 2.00
Speed rpm : 380...420 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 nciu Pressure hPa : 900 : 13.90...14.10 Rack travel mm Measurement 1/min : 600 Speed 1st pressure hPa : 300 Rack travel in m: 11.00...11.20 2nd pressure hPa : 550 Rack travel in m: 13.30...13.50 3rd pressure hPa : 1100 Rack travel in m: 14.10...14.20 4th pressure hPa : 1200 Rack travel in m: 14.50...14.70 5th pressure hPa : -Rack travel in m: 9.40...9.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1350 : 950 Speed rpm Del.quantity cm3/: 241.0...243.0 1000 s: (238.0...246.0) cm3 : 8.00 Spread

1000 s: (12.0)

1000 s: (238.0...249.0)

Speed rpm : 800 Del.quantity cm3/ : 241.0...246.0

Aneroid pressure h: 1350

Spread cm3: 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm: 500 bel.quantity cm3/: 145.0...147.0 1000 s: (142.0...150.0) Spread cm3: 8.00 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.80 Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 13.00...13.50

Remarks:

Note remarks

Test sheet

: SCA

Edition

: 22.01.93

Replaces

Test oil

: ISO-4113

Combination no. : 0 402 646 911

Injection pump

Pump designation : PE6P120A320RS7138Z

EP type number

: D 412 626 856

Governor

Governer no.

Governor design. : RQ200/1100PA873-1

: 0 421 801 615

Customer-spec. information

Customer

: SCANIA

Engine

: DSC9 07

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 104

Opening

pressure, bar

: 250...253

Orifice plate

diameter mm

: 0.7

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 4.40...4.50

: (4.35...4.55)

Rack travel in mm : 9.00...12.00

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 700

Rack travel in mm : 11.80...11.90

Del.quantity cm3/: 15.0...15.2

100 s: (14.7...15.5)

Spread

Spread

cm3 : 0.8

100 s: (1.2)

2nd speed

rpm : 250.0

Rack travel in mm: 4.5...4.9 Del.quantity cm3/ ; 1.2...1.6

100 s: (-)

cm3 : 0.4

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 600

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 700

Aneroid pressure h: 900

Del.quantity 1000

: 150.0...152.0 : (147.0...155.0)

Spread

cm3 : 8.00

1000 : (12.00)

RATED SPEED

1st version

Setting point:

rpm : 600

Rack travel in mm: 16.5

Testing:

Speed

1st rack travel in: 10.80

Speed

rpm : 1145...1160

2nd rack travel in: 4.00

Speed

rpm : 1290...1320

4th rack travel in: 1400

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

rpm : 250 Rack travel in mm: 4.6

Testina:

Speed rpm : 100 Minimum rack trave: 6.10 Speed rpm : 250

Rack travel in mm : 4.50...4.70

Rack travel in mm: 2.00 Speed rpm : 320...360

Aneroid/Altitude Compensator Test

1st version Setting

Speed וחכן זי : 500 Pressure hPa : 900

: 11.80...11.90 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.90...10.30

2nd pressure hPa : 350

Rack travel in m: 11.50...11.60

3rd pressure hPa : 220

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 Speed rpm : 1100

Del.quantity cm3/: 145.0...153.0 1000 s: (143.0...155.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 114.0...118.0 1000 s: (112.0...120.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80

rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

Speed rpm: 100 Rack travel in mm: 9.90...10.30

LOW IDLE

Speed rpm : 250 Rack travel in mm : 4.50...4.70

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

Start-of-delivery setting with ROBO

diaphragm.

APPLICATION

Omnibus

Note remarks

Test sheet : MB 9,6 o Edition : 27.03.92 Replaces : 01.92 Test oil : ISO-4113

Combination no. : 0 402 646 917

Injection pump

Pump designation : PE6P120A320LS7834

EP type number : 0 412 626 841

Governor

Governor design. : RQ300/950PA971 Governer no. : 0 421 801 543

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60

: (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.50...14.70

Del.quantity om3/: 22.7...22.9

100 s: (22.4...23.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 6.3...6.9

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

Speed rpm: 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 1100

Del.quantity : 227.0...229.0

1000 : (224.0...232.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm : 20.0 Testing:

1st rack travel in: 13.90

rpm : 990...1005 Speed

2nd rack travel in: 4.00

rpm : 1065...1095 Speed

4th rack travel in: 1200

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm: 6.6

Testing:

Speed : 200 rpm

Minimum rack trave: 8.50

: 300 Speed COM

Rack travel in mm: 6.30...6.90

Rack travel in mm: 2.00

: 380...420 Speed rom

TORQUE CONTROL

: 0.35 Dimension a mm

rpm : 950 2nd speed

Rack travel in m: 14.90...15.10

rpm : 800 3rd speed

Rack travel in m: 15.20...15.40

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rom

Pressure hPa : 1100 Rack travel mm : 14.50...14.70

Measurement

Speed 1/min: 600

1st pressure hPa : 300 Rack travel in m: 10.70...10.90

2nd pressure hPa : 700

Rack travel in m: 13.50...13.70

3rd pressure hPa : 1400

Rack travel in m: 14.60...14.80

4th pressure hPa : 1550

Rack travel in m: 14.90...15.10

5th pressure hPa : -

Rack travel in m: 10.00...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800

Speed rom : 950 Del.quantity cm3/: 236.0...239.0 1000 s: (233.0...242.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: 1800

Speed rpm: 800 Del.quantity cm3/: 243.0...247.0

1000 s: (240.0...250.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 132.0...134.0

1000 s: (129.0...137.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.90

Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 30.0...55.0 1000 s: (-)

Rack travel in mm : 10.00...10.30

Remarks:

* Increase in control-rod travel with

respect to setting at least 0.1 mm

Note remarks

Test sheet

Edition

: 30.04.92

Replaces

Test oil

: ISO-4113

Combination no. : 0 402 646 919

Injection pump

Pump designation: PE6P120A320LS7808-10

EP type number

: 0 412 626 850

Governor

Governor design. : RQ300/950PA762-13

Governer no.

: 0 421 801 544

Customer

Customer-spec. information

: MERCEDES-BENZ

Engine

: 0M441 LA

1st version kW

: 250.0

Rated speed

: 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly

: 1 688 901 105

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,8

Test lines

: 1 680 750 075

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.20...5.30

: (5.15...5.35)

Firing order

Rack travel in mm : 20.00...21.00

: 6-3-5-2-4-1

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed

rpm: 600

Rack travel in mm : 14.10...14.30

Del.guantity cm3/: 21.6...21.8

100 s: (21.3...22.1)

Spread

cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm: 5.7...6.0 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread

Speed

cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

npm : 600

Aneroid pressure h: 750

Del.quantity

: 216.0...218.0

1000 : (213.0...221.0)

cm3

: 5.00

1000 : (9.00)

RATED SPEED

Spread

Speed

1st version

Setting point:

rpm : 600

Rack travel in mm: 20.0

M07

Testing: 1st rack travel in: 14.30 rpm : 1090...1105 Speed 2nd rack travel in: 4.00 Speed rpm : 1175...1205 4th rack travel in: 1300 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.8 Testing: Speed rpm : 200 Minimum rack trave: 7.70 : 300 Speed **MUTH** Rack travel in mm : 5.70...6.00 Rack travel in mm : 2.00 Speed : 380...420 rom Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 man hPa : 750 Pressure Rack travel mm : 14.10...14.30 Measurement Speed 1/min: 600 1st pressure hPa : 200 Rack travel in m: 10.30...10.50 2nd pressure hPa : 500
Rack travel in m: 13.00...13.20
3rd pressure hPa : 950
Rack travel in m: 14.20...14.40 * 4th pressure hPa : 1150 Rack travel in m: 14.80...15.00 5th pressure hPa : -Rack travel in m: 9.20...9.30 START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1350 rpm_ : 1050 Del.quantity cm3/: 243.0...245.0 1000 s: (240.0...248.0) Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: 1350
Speed rpm: 750
Del.quantity cm3/: 239.0...243.0
1000 s: (236.0...246.0)
Spread cm3: 8.00
1000 s: (12.0)
Aneroid pressure h: -Speed rpm: 500
Del.quantity cm3/: 134.0...136.0
1000 s: (131.0...139.0)
Spread cm3: 8.00
1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 14.30 Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 210.0...230.0 1000 s: (206.0...234.0)

Remarks:

* Increase in control-rod travel with respect to setting at least G.1 mm

M08

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet Edition : 30.04.92 Replaces Test oil : ISO-4113 Combination no. : 0 402 646 920 Injection pump Pump designation: PE6P12DA320LS7808-10 EP type number : 0 412 626 850 Governor Governor design: RQ300/950PA971-1 Governer no. : 0 421 801 547 Customer-spec. information Customer : MERCEDES-BENZ Engine : 019441 LA 1st version kW : 250.0 Rated speed : 1900 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder assembly : 1 688 901 105 Opening | pressure, bar : 207...210 Orifice plate diameter mm 3.0:

Test lines : 1 680 750 075 Outside diameter x Wall thickness : 8.00x2.50x1000 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 5.20...5.30 Prestroke mm : (5.15...5.35) Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. BASIC SETTING 1st speed rpm: 600 Rack travel in mm : 13.90...14.10 Del.quantity cm3/: 22.1...22.3 100 s: (21.8...22.6) Spread cm3 : 0.5100 s: (0.9) rpm : 300.02nd speed Rack travel in mm: 5.7...6.0 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5) cm3 : 0.6Spread 100 s: (1.0) GUIDE SLEEVE POSITION Control-Lever position Degree: -2 rpm : 600 Rack travel in mm : 19,20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 600 Aneroid pressure h: 950 Del.quantity : 221.0...223.0 1000 : (218.0...226.0) : 5.00 Spread cm3 1000 : (9.00)RATED SPEED 1st version

Setting point:

Speed rpm : 600 Rack travel in mm: 20.0

per values ___

Testina: 1st rack travel in: 14.10 rom : 990...1005 Speed 2nd rack travel in: 4.00 rpm : 1065...1095 Speed 4th rack travel in: 1150 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm : 5.8 Testing: Speed rpm : 200 Minimum rack trave: 7,70 Speed rpm : 300
Rack travel in mm : 5.70...6.00
Rack travel in mm : 2.00 : 380...420 Speed rom TORQUE CONTROL 2nd speed : 950 MOD : 700 3rd speed riom Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 וחסים Pressure hPa : 900 Rack travel mm : 13.90...14.10 Measurement Speed 1/min: 600 1st pressure hPa : 350 Rack travel in m: 10.70...10.90 2nd pressure hPa : 600 Rack travel in m: 12.80...13.00
3rd pressure hPa : 1150
Rack travel in m: 14.20...14.40
4th pressure hPa : 1250 Rack travel in m: 14.70...14.90 5th pressure hPa : -Rack travel in m: 9.20...9.50 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1550 Speed rpm : 950
Del.quantity cm3/: 251.0...254.0
1000 s: (248.0...257.0) Spread cm3 : 8.001000 s: (12.0)

Aneroid pressure h: 1550

Speed rpm: 750

Del.quantity cm3/: 242.0...246.0

1000 s: (239.0...249.0)

Spread cm3: 8.00

1000 s: (12.0)

Aneroid pressure h:
Speed rpm: 500

Del.quantity cm3/: 138.0...140.0

1000 s: (135.0...143.0)

Spread cm3: 8.00

1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than full load rack tr: 14.10

Speed rpm : 990...1005

Remarks:

M10

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DAF 8,7 b Edition : 18.12.91 Replaces : 05.91 Test oil : ISO-4113 Combination no. : 0 402 646 933 Injection pump Pump designation : PE6P12DA32ORS7228 EP type number : 0 412 626 845 Governor Governor design. : RQ275/1150PA987 Governer no. : 0 421 801 578 Customer spec. information Customer : DAF Engine : RS 222 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 105 Opening. pressure, bar : 207...210 Orifice plate diameter mm : 0.8 Test lines : 1 680 750 089 Outside diameter x Wall thickness x Length mm : 8.00x2.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ___ BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 5.20...5.30

Rack travel in mm : 14.20...15.20

: (5.15...5.35)

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BEGINNING OF DELIVERY DIFFERENCE betw. rack trav. m: 5.50...5.70 & maximum rack tra: 14.2...15.2 Difference ° CS : 3.25...4.75 BASIC SETTING 1st speed rpm: 1000 Rack travel in mm : 14.70...14.80 Del.quantity cm3/: 17.7...17.9 100 s: (17.4...18.2) Spread cm3 : 0.5100 s: (0.9) 2nd speed rpm : 275.0Rack travel in mm: 6.6...6.8 Del.quantity cm3/ : 1.3...1.9 100 s: (1.0...2.2) cm3 : 0.8Spread 100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 550 Rack travel in mm : 15.60...16.40 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1000 Aneroid pressure h: 1000 Del.quantity : 177.0...179.0 1000 : (174.0...182.0) Spread cm3 : 5.00 1000 : (9.00) RATED SPEED 1st version Setting point: Speed : 550 rpm

Rack travel in mm: 16.0

Prestroke mm

Testing:

1st rack travel in: 13.70

rpm : 1175...1190 Speed

2nd rack travel in: 4.00

rpm : 1260...1290 Speed

4th rack travel in: 1450

rpm : 0.00...1.40 Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 275 Rack travel in mm : 5.6

Testing:

Speed rpm : 100

Minimum rack trave: 7.10

Speed rpm : 275

Rack travel in mm : 5.50...5.70

Rack travel in mm : 2.00

Speed rom : 330...370

TORQUE CONTROL

Dimension a mm :-

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 15.20...15.30

2nd speed rpm : 1150 Rack travel in m: 15.10...15.30

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 600 rpm Pressure hPa : 1000

Rack travel mm : 14.70...14.80

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 12.60...12.80

2nd pressure hPa : 470

Rack travel in m: 13.90...14.00

3rd pressure hPa : 350

Rack travel in m: 13.00...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/ : 131.0...133.0

1000 s: (128.0...136.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.70

rpm : 1175...1190 Speed

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.50...5.70

Remarks:

Start-of-delivery blocking at start of

delivery of cylinder no. 1.

Note remarks

Test sheet

: MB

Edition

: 30.04.92

Replaces

Test oil

: ISO-4113

Combination no. : 0 402 646 943

Injection pump

Pump designation : PE6P120A320S7808-10

EP type number

: 0 412 626 850

Governor

Governor design. : RQV300...950PA795-28

Governer no.

: 0 421 813 925

Customer-spec. information

Customer

: MERCEDES-BENZ

Engine

: 0M441 LA

1st version kW

: 250.0

Rated speed

: 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly

: 1 688 901 105

: 207...210

Openina

pressure, bar

Orifice plate

diameter mm

: 0,8

Test lines

: 1 680 750 075

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x1000

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order

: 6-3-5-2-4-1

Phasing

: 0-60-120-180-240-300

Tolerance + - "

: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed

rpm : 600

Rack travel in mm : 13.90...14.10

Del.quantity cm3/: 22.1...22.3

100 s: (21.8...22.6)

Spread

cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 5.7...6.0

Deliquantity cm3/: 1.6...2.2

100 s: (1.3...2.5) Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.00...1.50

travel mm

2nd speed rpm: 567 : 4.40...4.90

3rd speed

rpm : 780

travel mm

: 6.10...6.60

4th speed man

: 1009 : 8.30...8.80

travel mm 5th speed

rpm

: 1092

travel mm : 9.80...10.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1090

Speed

Rack travel in mm: 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 600 Aneroid pressure h: 950 Del.quantity : 221.0...223.0 1000 : (218.0...226.0) cm3 : 5.00 1000 : (9.00) Spread RATED SPEED 1st version Control lever position degrees: 95...103 Testina: 1st rack travel in: 14.10 Speed rpm : 990...1000 2nd rack travel in: 4.00 rpm : 1065...1095 Speed 4th rack travel in: 1150 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 69...77 Testing: Speed rpm Minimum rack trave: 7.70 : 300 Speed rom Rack travel in mm : 5.70...6.00 CONSTANT REGULATION Speed rpm : 300...500 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 חכרו hPa : 900 Pressure Rack travel mm : 13.90...14.10 Measurement 1/min: 600 Speed 1st pressure hPa : 350 Rack travel in m: 10.70...10.90 2nd pressure hPa : 600 Rack travel in m: 12.80...13.00 3rd pressure hPa : 1150 Rack travel in m: 14.20...14.40 4th pressure hPa : 1250 Rack travel in m: 14.70...14.90

1st version Aneroid pressure h: 1550 Speed rpm : 950 Del.quantity cm3/ : 251.0...254.0 1000 s: (248.0...257.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1550 Speed rpm : 750 Del.quantity cm3/: 242.0...246.0 1000 s: (239.0...249.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -: 500 Speed rom Del.quantity cm3/: 138.0...140.0 1000 s: (135.0...143.0) cm3 : 8.00 Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 14.10

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 210.0...230.0 1000 s: (206.0...234.0)

rpm : 990...1000

Remarks:

Speed

M14

5th pressure hPa : -

Rack travel in m: 9.20...9.50

FUEL DELIVERY CHARACTERISTICS

Note remarks

Test sheet

Edition : 30.04.92

Replaces

Test oil : ISO-4113

Combination no. : 0 402 646 944

Injection pump

Pump designation : PE6P120A320LS7808-10

EP type number : 0 412 626 850

Governor

: RQV300...1050PA797 Governor design.

-29

Governer no. : 0 421 813 926

Customer-spec, information

: MERCEDES-BENZ Customer

Engine : 0M441 LA

1st version kW : 250.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm: 20.00...21.00

Firing order: 6-3-5-2-4-1

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.10...14.30

Del.quantity cm3/: 21.6...21.8

100 s: (21.3...22.1)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.7...6.0

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

Spread

1st speed rpm : 300

travel mm : 1.00...1.50

2nd speed rpm : 608

travel mm : 4.80...5.30 : 820

3rd speed rpm

5.90...6.40 travel mm

: 1108 4th speed rpm

travel mm : 8.30...8.80

5th speed rpm : 1183

travel mm : 9.60...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1090

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 600 Aneroid pressure h: 750 Del.quantity : 216.0...218.0 1000 : (213.0...221.0) : 5.00 Spread cm3 1000 : (9.00)RATED SPEED 1st version Control Lever position degrees: 118...126 Testina: 1st rack travel in: 14.30 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rpm: 1175...1205 4th rack travel in: 1300 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 54...62 Testing: Speed : 200 rom Minimum rack trave: 7.70 mon Rack travel in mm : 5.70...6.00 CONSTANT REGULATION Speed : 300...500 rom Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed rpm Pressure hPa : 750 Rack travel mm : 14.10...14.30 Measurement 1/min: 600 Speed 1st pressure hPa : 200 Rack travel in m: 10.30...10.50 2nd pressure hPa : 500 Rack travel in m: 13.00...13.20 3rd pressure hPa : 950 Rack travel in m: 14.20...14.40 * 4th pressure hPa : 1150 Rack travel in m: 14.80...15.00

START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1350 Speed rpm : 1050 Del.quantity cm3/ : 243.0...245.0 1000 s: (240.0...248.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1350 : 750 Speed rpm Del.quantity cm3/: 239.0...243.0 1000 s: (236.0...246.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 134.0...136.0 1000 s: (131.0...139.0) cm3 : 8.00 Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 14.30 rpm : 1090...1100 Speed STARTING FUEL DELIVERY : 100 Speed man Del.quantity cm3/: 210.0...230.0 1000 s: (206.0...234.0) Remarks: * Increase in control-rod travel with respect to setting at least 0.1 mm

5th pressure hPa : -

Rack travel in m: 9.20...9.50

Note remarks

Test sheet : UNI 13,8 h2 Edition : 05.10.92

Replaces : 07.92 Test oil : ISO-4113

Combination no. : 0 402 646 947

Injection pump

Pump designation : PE6P130A720RS7225 EP type number : 0 412 636 817

Governor

Governor design. : RQV300...950PA1002

-1K

Governer no. : 0 421 815 280

Customer-spec. information Customer : IVECO-UNIC

Engine : 8210.42.400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10

: (4.95...5.15)

Rack travel in mm : 13.50...14.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 5.90...6.10 % maximum rack tra: 12.5...13.5 Difference * CS : 1.25...2.75

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 31.3...31.5

100 s: (31.0...31.8)

Spread cm3: 0.5

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 4.0...4.4

Del.quantity cm3/: 1.9...2.5 100 s: (1.6...2.8)

Spread cm3 : 0.8 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 995

travel mm : 8.50...8.70

2nd speed rpm : 300

travel mm : 1.00...1.40 3rd speed rpm : 500

travel mm : 3.30...3.90

4th speed rpm : 750 travel mm : 5.80...6.20

5th speed rpm : 1300

travel mm : 13.00...14.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 1125

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 900 Aneroid pressure h: 900 Del.quantity : 313.0...315.0 1000 : (310.0...318.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 112...120 Testing: 1st rack travel in: 12.00 rpm : 990...1000 Speed 2nd rack travel in: 4.00 rpm : 1100...1130 Speed 4th rack travel in: 1300 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 66...74 Testing: Speed : 100 rpm Minimum rack trave: 5.70 Speed : 300 rem Rack travel in mm : 4.00...4.40 CONSTANT REGULATION riom : 340...460 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version rpm : 900 1st speed Rack travel in m: 13.00...13.10 2nd speed rpm : 700 Rack travel in m: 12.70...12.90

3rd speed rpm : 550

Rack travel in m: 12.00...12.20 4th speed rpm : 300 Rack travel in m: 11.20...11.70 Aneroid/Altitude Compensator Test 1st version Setting Speed : 900 rom Pressure hPa : 900 Rack travel mm : 13.00...13.10 Measurement 1/min: 900 Speed

1st pressure hPa : -Rack travel in m: 8.30...8.50 2nd pressure hPa : 580 Rack travel in m: 11.90...12.00 3rd pressure hPa : 300 Rack travel in m: 9.30...9.70 START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 : 550 PPM Del.quantity cm3/: 286.0...292.0 1000 s: (283.0...295.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 148.0...150.0 1000 s: (145.0...153.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.00 rpm : 990...1000 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 135.0...165.0 1000 s: (131.0...169.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 4.00...4.40 Del.quantity cm3/: 19.0...25.0 1000 s: (16.0...28.0) cm3 : 8.00 Spread 1000 s: (12.00) Remarks:

M18

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11.7 n1 : 23.10.92 Edition

Replaces : 02.92 Test oil : ISO-4113

Combination no. : 0 402 646 949

Injection pump

Pump designation : PE6P120A320RS7230Z

EP type number : 0 412 626 848

Governor

Governor design. : RQV250...1000PA990K

: 0 421 815 274 Governer no.

Customer-spec. information Customer : DAF

Engine : WS 295 G

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10

: (4.95...5.15)

Rack travel in mm : 14.00...15.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 980 1st speed

Rack travel in mm : 13.70...13.80

Del.quantity cm3/: 25.4...25.6

100 s: (25.1...25.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 250.0 2nd speed Rack travel in mm: 5.8...6.0 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8Spread 100 s: (1,2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed

: 1.30...1.70 travel mm

rpm : 285 2nd speed

: 2.10...2.50 travel mm

rpm : 1030 3rd speed

: 9.60...10.00 travel mm

rpm : 1145 4th speed

: 11,20,...11,40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1070

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Aneroid pressure h: 1500

Del.quantity : 254.0...259.0)

: 5.00 Spread cm3

1000 : (9,00)

RATED SPEED

M19

1st version Control lever

position degrees: 117...125

Testing:

1st rack travel in: 12.70

Speed rpm : 1030...1040

2nd rack travel in: 4.00

rpm : 1135...1165 Speed

4th rack travel in: 1275

Speed rpm : 0.00...1.40

LOW IDLE 1 Control lever

position degrees: 67...75

Testing:

Speed rpm : 150

Minimum rack trave: 7.00 rpm : 250 Speed

Rack travel in mm : 5.10...5.30 Rack travel in mm : 2.00

Speed rpm : 320...360

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 500

Rack travel in m: 12.30...12.40

2nd speed : 550 rpm

Rack travel in m: 12.30...12.50

3rd speed rpm : 750

Rack travel in m: 12.90...13.00

4th speed rpm : 850

Rack travel in m: 13.30...13.50

5th speed rpm: 980

Rack travel in m: 14.00...14.20

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed חסח : 980 hPa : 1500 Pressure

Rack travel mm : 13.70...13.80

Measurement

1/min: 980 Speed

1st pressure hPa : -

Rack travel in m: 8.00...8.20 2nd pressure hPa : 380 Rack travel in m: 10.80...10.90

3rd pressure hPa : 150

Rack travel in m: 9.10...9.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500

rpm : 500 Speed

Del.quantity cm3/ : 267.0...271.0 1000 s: (264.0...274.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/ : 143.0...145.0

1000 s: (140.0...148.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.70

Speed rpm : 1030...1040

LOW IDLE

Speed rpm : 250

Rack travel in mm : 5.10...5.30

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB

: 30.04.92 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 646 950

Injection pump

Pump designation : PE6P120A320LS7837-10

EP type number : 0 412 626 855

Governor

Governor design. : RQ300/950PA993-2

Governer no. : 0 421 801 590

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M441 LA

1st version kW : 250.0 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 23.3...23.5

100 s: (23.0...23.8)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 6.2...6.8 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 1000

Del.quantity : 233.0...235.0

1000 : (230.0...238.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed Rack travel in mm: 20.0 Testing:

1st rack travel in: 14.70

rpm : 990...1005 Speed

2nd rack travel in: 4.00

rpm : 1065...1095 Speed

4th rack travel in: 1200

rpm : 0.00...1.50Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 6.5

Testing:

Speed : 200 rom Minimum rack trave: 8.30 Speed

rpm : 300

Rack travel in mm: 6.20...6.80 Rack travel in mm: 2.00

: 380...420 Speed חמר

Aneroid/Altitude Compensator Test

1st version

Settina

Speed : 600 rom Pressure hPa : 1000

Rack travel mm : 14.70...14.90

Measurement

Speed 1/min: 600

1st pressure hPa : 200

Rack travel in m: 9.80...10.00

2nd pressure hPa : 600

Rack travel in m: 13.50...13.70 3rd pressure hPa : 1250 Rack travel in m: 14.80...15.00

4th pressure hPa : 1450 Rack travel in m: 15.40...15.60

5th pressure hPa

Rack travel in m: 9.50...9.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800

Speed rpm : 950 Del.quantity cm3/ : 251.0...254.0 1000 s: (248.0...257.0)

cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: 1800

Speed 208 : morn

Del.quantity cm3/: 250.0...254.0 1000 s: (247.0...257.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 135.0...137.0 1000 s: (132.0...140.0)

cm3 : 8.00Spread

1000 s: (12.0)

EREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.70

rpm : 990...1005 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity_cm3/ : 240.0...260.0

1000 s: (236.0...264.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Spread

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 9,6 o 5 Edition | : 30.04.92 Replaces : 03.92

Test oil : ISO-4113

Combination no. : 0 402 646 955

Injection pump

Pump designation: PE6P12OA32OLS7834-1

EP type number : 0 412 626 857

Governor

Governor design. : RQV350...1050PA866

-13

: 0 421 813 954 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M401 LA

1st version kW : 230.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60 : (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.60...14.80

Del.quantity cm3/: 22.2...22.4

100 s: (21.9...22.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm: 5.1...5.7

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6

Spread 100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rom : 350

: 1.30...1.80 travel mm

rpm : 570 2nd speed

: 3.30...3.80 travel mm

3rd speed rpm : 900

travel mm : 5.40...5.90

rpm : 1107 4th speed

travel mm : 7.80...8.30

5th speed : 1204 rpm

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

3rd pressure hPa : 1350 1st version Rack travel in m: 14.70...14.90 Speed rpm : 600 4th pressure hPa : -Aneroid pressure h: 900 Rack travel in m: 10.00...10.30 : 222.0...224.0 Del.quantity 1000 : (219.0...227.0) START CUT-OUT Spread cm3 : 5.00 1000 : (9.00) Speed 1/min : 270 (290) RATED SPEED FUEL DELIVERY CHARACTERISTICS 1st version Control lever 1st version position degrees: 117...125 Aneroid pressure h: 1800 : 1050 Speed rpm Testing: Del.quantity cm3/: 234.0...237.0 1st rack travel in: 13.70 1000 s: (231.0...240.0) Speed rpm : 1090...1100 cm3 : 8.00Spread 2nd rack travel in: 4.00 1000 s: (12.0) Speed rpm : 1160...1190 Aneroid pressure h: 1800 4th rack travel in: 1300 Speed rom : 800 Speed rpm : 0.00...1.00Del.quantity cm3/: 241.0...245.0 1000 s: (238.0...248.0) LOW IDLE 1 cm3 : 8.00Spread Control lever 1000 s: (12.0) Aneroid pressure h: 1800 position degrees: 63...71 Speed rpm : 1050 Del.quantity cm3/ : 175.0...179.0 * Testing: Speed : 200 1000 s: (172.0...182.0) rpm Minimum rack trave: 7.30 Spread cm3 : 8.00: 350 rom 1000 s: (12.0) Rack travel in mm : 5.10...5.70 Aneroid pressure h: -: 500 Speed rpm CONSTANT REGULATION Del.quantity cm3/: 132.0...134.0 Speed rpm : 350...600 1000 s: (129.0...137.0) Spread cm3 : 8.00 TORQUE CONTROL 1000 s: (12.0) Dimension a mm : 0.40 nd speed rpm ; 1050 Rack travel in m: 14.80...15.00 2nd speed BREAKAWAY : 800 3rd speed rpm Rack travel in m: 15.20...15.40 1st version 1mm rack travel less than Aneroid/Altitude Compensator Test full load rack tr: 13.70 Speed rpm : 1090...1100 1st version STARTING FUEL DELIVERY Settina Speed : 600 rpm hPa : 900 Pressure Speed rpm : 100 : 14.60...14.80 Rack travel mm Del.quantity cm3/: 250.0...270.0 1000 s: (246.0...274.0) Measurement Speed $1/\min : 600$ Remarks: 1st pressure hPa : 300 Rack travel in m: 11.40...11.60 * = Set at reduced-delivery stop. 2nd pressure hPa : 600

Rack travel in m: 13.40...13.60

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 9,6 o 7
Edition : 30.04.92
Replaces : 03.92
Test oil : ISO-4113

Combination no. : 0 402 646 961

Injection pump

Pump designation : PE6P120A320LS7834-1

EP type number : 0 412 626 857

Governor

Governor design. : RQV350...950PA866-14

Governer no. : 0 421 813 959

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M4D1 LA

1st version kW : 213.0 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60

: (5.45...5.55)

Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.30...14.50

Del.quantity cm3/: 20.9...21.1

100 s: (20.6...21.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.6...6.2

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.30...1.80

2nd speed rpm : 424

travel mm : 2.30...2.80

3rd speed rpm : 700

travel mm : 4.10...4.60

4th speed rpm : 1008

travel mm : 7.90...8.40

5th speed rpm : 1220

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 985

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 600 Aneroid pressure h: 900 Del.quantity : 209.0...211.0 Spread cm3: 5.00 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 111...119 Testina: 1st rack travel in: 13.80 Speed rpm : 990...1000 2nd rack travel in: 4.00 : 1065...1095 Speed rom 4th rack travel in: 1250 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 63...71 Testing: Speed rom : 200 Minimum rack trave: 7.30 rpm : 350 Speed Rack travel in mm : 5.10...5.70 CONSTANT REGULATION Speed rpm : 350...600 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rom Pressure hPa : 900 : 13.30...13.50 Rack travel mm Measurement Speed 1/min: 600 1st pressure hPa : 300 Rack travel in m: 9.80...10.00 2nd pressure hPa : 550

1000 : (206.0...214.0) Rack travel in m: 12.30...12.50 3rd pressure hPa : 1300

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1600 Speed rpm : 950 Del.quantity cm3/ : 228.0...231.0

1000 s: (225.0,..234.0)

Spread cm3 : 8.001000 s: (12.0)

Aneroid pressure h: 1600 : 800 Speed rom

Del.quantity cm3/: 230.0...234.0

1000 s: (227.0...237.0) cm3 : 8.00

1000 s: (12.0) Aneroid pressure h: 1600 שכוח : 950

Del.quantity cm3/: 169.0...173.0 *

1000 s: (166.0...176.0)

Spread cm3 : 8.00 1000 s: (12.0)

Aneroid pressure h: -Speed rom

Del.quantity cm3/: 132.0...134.0 1000 s: (129.0...137.0)

Spread cm3 : 8.001000 s: (12.0)

BREAKAWAY

Spread

1st version 1mm rack travel less than

full load rack tr: 13.80 Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 240.0...260.0

1000 s: (236.0...264.0)

Remarks:

* = Set at reduced-delivery stop.

START CUT-OUT

4th pressure hPa : -

1/min : 270 (290) Speed

Rack travel in m: 13.70...13.90

Rack travel in m: 9.90...10.20

M26

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5-3-6-2-4 Firing order Note remarks Test sheet : DAF Phasing : 0-60-120-180-240-300 : 22.01.93 Edition Replaces : 10.92 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Test oil : ISO-4113 Time to cyl. no. : 1 Combination no. : 0 402 646 984 BEGINNING OF DELIVERY DIFFERENCE Injection pump Pump designation : PE6P120A320RS7248 betw. rack trav. m: 4.90...5.10 EP type number : 0 412 626 861 & maximum rack tra: 11.7...12.7 Governor Difference * CS : 2.25...3.75 Governor design. : RQ275/1150PA987 : 0 421 801 578 Governer no. BASIC SETTING Customer-spec. information 1st speed rpm: 1000 Customer : DAF Rack travel in mm : 12.20...12.30 Engine : RS 222 L Del.quantity cm3/: 18.4...18.6 TEST BENCH REQUIREMENTS 100 s: (18.1...18.9) Test oil inlet temp. °C : 38...42 Spread cm3 : 0.5Overflow valve 100 s: (0.9) : 1 417 413 025 2nd speed rpm : 275.0 Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.3...1.9 Inlet press., bar: 1.50 Test nozzle holder 100 s: (1.0...2.2) : 1 688 901 105 assembly cni3 : 0.8 Spread 100 s: (1.2) Opening : 207...210 pressure, bar GUIDE SLEEVE POSITION Control-lever position Orifice plate Degree: -1 Speed rpm: 550 Rack travel in mm: 15.20...16.40 diameter mm : 0,8 : 1 680 750 089 Test lines FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter 1st version x Wall thickness rpm : 1000 Speed x Length mm : 8.00x2.50x600 Aneroid pressure h: 1000 Del.quantity : 186.0...188.0 1000 : (183.0...191.0) (A) Injection pump setting values Insp. values in parentheses cm3 : 5.00 Spread Set equal delivery quant. 1000 : (9.00) per values RATED SPEED BEGINNING OF DELIVERY Test pressure, bar: 25...27 1st version Prestroke mm : 5.20...5.30 Setting point: : (5.15...5.35) Speed rpm : 550

Rack travel in mm : 15.8

M27

Rack travel in mm : 12.00...13.00

Testina:

1st rack travel in: 11.20

rpm : 1200...1216 Speed

2nd rack travel in: 4.00

Speed rpm : 1275...1305 4th rack travel in: 1450

rpm : 0.00...1.40 Speed

LOW IDLE 1

Setting point w/out bumper spring

nom : 275 Rack travel in mm: 4.7

Testina:

Speed rpm : 175 Minimum rack trave: 7.00 rpm : 275 Speed

Rack travel in mm : 4.60...4.80

Rack travel in mn: 2.00 : 320...360 Speed rom

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600 hPa : 1000 Pressure

Rack travel mm : 12.20...12.30

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 9.30...9.50

2nd pressure hPa : 420

Rack travel in m: 11.60...11.70

3rd pressure hPa : 240 Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/ : 121.0...123.0 1000 s: (118.0...126.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.20

riom : 1200...1215 Speed

LOW IDLE

rpm : 275 Speed

Rack travel in mm : 4.60...4.80

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF

: 23.10.92 Edition Replaces : 07.92

Test oil : ISO-4113

Combination no. : 0 402 646 991

Injection pump

Pump designation: PE6P12OA32ORS7218Y

EP type number : 0 412 626 859

Governor

Governor design. : RQV275...1000PA939-2

Governer no. : 0 421 813 986

Customer-spec. information Customer : DAF

Engine : WS 222 L

TEST BENCH REQUIREMENTS

Test oil

inlet temp. "C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 105

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter

x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.30...5.40

: (5.25...5.45)

Rack travel in mm : 13.00...14.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10 & maximum rack tra: 13.2...14.2 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 13.80...13.90

Del.quantity cm3/: 19.8...20.0

100 s: (19.5...20.3)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm: 6.2...6.6 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275

: 1.25...1.45 travel mm

rpm : 301 2nd speed

travel mm 1.50...2.00

3rd speed rpm : 351

travel mm : 2.30...2.80

4th speed rpm : 676

: 4.25...4.75 travel mm

rpm : 1058 5th speed

: 7.95...8.15 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1150 Speed

Rack travel in mm : 11.40...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

NO1

1st version Speed rpm : 850 Aneroid pressure h: 1000 Del.quantity : 198.0...203.0) : 5.00 cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 115...123 Testing: 1st rack travel in: 12.80 rpm : 1040...1050 2nd rack travel in: 4.00 Speed rpm : 1145...1175 4th rack travel in: 1250 rpm : 0.00...1.40Speed LOW IDLE 1 Control lever position degrees: 78...86 Testing: Speed man : 175 Minimum rack trave: 6.50 rpm : 275 Rack travel in mm : 4.90...5.10 CONSTANT REGULATION Speed rpm : 300...350 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm hPa : 1000 Pressure Rack travel mm : 13.80...13.90 Measurement 1/min: 600 Speed 1st pressure hPa : -Rack travel in m: 11.50...11.70 2nd pressure hPa : 400 Rack travel in m: 13.20...13.30 3rd pressure hPa : 230 Rack travel in m: 12.00...12.20 FUEL DELIVERY CHARACTERISTICS

rpm : 600 Speed Del.quantity cm3/: 139.0...141.0 1000 s: (136.0...144.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.80 Speed rpm : 1040...1050 LOW IDLE Speed : 275 rpm Rack travel in mm : 4.90...5.10 Remarks:

NO2

1st version

Aneroid pressure h: -

AFB/AFB BOSCH-INJ.-PUMP TEST SPECIFICATIONS Volt: 12 valve Shutoff Note inst. in remarks column electromagnet Volt: 12 Test scheet : OPF Supply-pump pressure Edition : 07.93 replaces Speed 1/min: 1000 Charge press hPa: 1000 Setting value bar: 4.20...4.80 Calibrating oil : ISO-4113 Injection pump : VE4/10F2150L489 KSB/AFB Type number : 0 460 404 074 valve Volt: 12 Customer Part-No. : Shutoff electromagnet Volt: 12 Customer-specific information Full-load del. with charge press.: Customer : OPEL Speed 1/min: 1200 Engine : 2,3 DTR Charge press. hPa: 1000 Del. quantity cm3/ Power KW: 74 1000s.: 62.50...63.50 KSB/AFB TEST BENCH REQUIREMENTS valve Volt: 12 Shutoff Overflow restricti: 1 463 456 303 electromagnet Volt: 12 Dispersion cm3/: 3.0 Calibrating-oil 1000s.: (3.0) return temp. with thenmometer : 40.00...48.00 Full-load del. w/out charge press.: Electronically : 42.00...50.00 1/min: 500 Speed Inlet press., bar : 0.30...0.40 Del. quantity cm3/ 1000s.: 40.50...41.50 Calibrating nozzle-holder KSB/AFB 11 assembly : 1 688 901 000 valve Volt: 12 Shutoff Opening electromagnet Volt: 12 bar: 147.00...150.00 Pressure Low-idle speed regulation Test inj. tubing : 1 680 750 017 Speed 1/min: 290 Del. quantity cm3/ Outside diameter : 6.00 1000s.: 13.50...17.50 x Wall thickness : 2.00 KSB/AFB x Length mn: 840 valve Voit: 12 Shutoff Start of delivery electromagnet Volt: 12 Del. quantity cm3/: 3.0 Indicator setting 1000s.: (3.0) Piston stroke mm: 1.0 Outlet Full-load speed regulation Injection-pump setting values 1/min: 2500 Speed Test specifications in parentheses Charge press hPa: 1000 Del. quantity cm3/ Timing-device travel 1000s.: 15.00...21.00 KSB/AFB Speed 1/min: 1000 Volt: 12 valve Charge press. hPa: 1000 Shutoff Setting value mm: 2.70...3.10 electromagnet Volt: 12

NO3

	+ Shutoff
Start:	+ electromagnet Volt: 12
	+ 9th speed 1/min: 300A
Speed 1/min: 100	+ Charge press. hPa: 1000
Del. quantity cm3/: 37.0039.00 L	+ TD travel mm: 1.503.50
mind 1000s.: 37.00	+ mm: (1.303.70)
KSB/AFB	+ KSB/AFB
Valve Volt: 12	+ valve Volt: -
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
•	+ 10th speed 1/min: 800B
Load-dependent start of delivery:	+ Charge press. hPa: 1000
Injqty.dif.measurement:	+ TD travel mm: 3.606.00
	mm: (3.006.60)
Speed 1/min: 1000	+ KSB/AFB
Charge press hPa: Z +	valve Volt: -
Inj.—qty. cm3/	Shutoff
difference 1000s.: 22.0024.00	
KSB/AFB	+ electromagnet Volt: 12
valve Volt: 12	T Complete management of the control
	Supply-pump pressure characteristic:
Shutoff	† 4 A 24.0
electromagnet Volt: 12	+ 1st speed 1/min: 2100
TD-travel dif.measurement	+ Charge press. hPa: 1000
correttore anticipo iniezione (SV)	+ Supply-pump
1. Speed 1/min: 1000	+ pressure bar: 6.907.50
Charge press hPa: Z +	+ KSB/AFB
TD-travel	+ valve Volt: 12
difference mm: 1.201.40	+ Shutoff
KSB/AFB	+ electromagnet Volt: 12
valve Volt: 12	+ 2nd speed 1/min: 1000
Shutoff	+ Charge press. hPa: 1000
electromagnet Volt: 12	Supply-pump
	+ pressure bar: 4.204.80
Inspection-pump test specifications	+ KSB/AFB
Test specifications in parentheses	valve Volt: 12
TOUR SPECIFICACIONS IN PARCHETESES	+ Shutoff
Timing-device characteristic:	+ electromagnet Volt: 12
raining device character istic.	
1st speed 1/min: 2100	3rd speed 1/min: 800
	+ Charge press. hPa: 1000
Charge press hPa: 1000	+ Supply-pump
TD travel mm: 8.309.10	+ pressure bar: 3.704.30
mm: (8.009.40)	+ KSB/AFB
KSB/AFB	+ valve Volt: 12
valve Volt: 12	+ Shutoff
Shutoff : -	+ electromagnet Volt: 12
electromagnet Volt: 12	+ 4th speed 1/min: 300
3rd speed 1/min: 1000	+ Charge press. hPa: 1000
Charge press hPa: 1000	+ Supply-pump
TD travel mm: 2.703.10	+ pressure bar: 4.204.80
mm: (2.203.60)	+ KSB/AFB
KSB/AFB	+ valve Volt: -
valve Volt: 12	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	
4th speed 1/min: 800	Overlow quantity at overflow valve:
Charge press hPa: 1000	The same desired at over 100% and over 100%
TD travel mm: 1.302.10	1st speed 1/min: 500
mm: (1.002.40)	+ Charge press. hPa: -
KSB/AFB	KSB/AFB
valve Volt: 12	
ישנים יטננ. וב	+ valve Voit: 12

NO4

Shutoff		+	KSB/AFB	
electromagnet Volt:		+	valve Volt:	12
Overflow :	41.7083.40	+	Shutoff	
quantity cm3/10s:		+	electromagnet Volt:	12
2nd speed 1/min:		+	Del. quyntity cm3/:	62.5063.50
Charge press. hPa:	1000	+		(60.7065.30)
KSB/AFB		+	18th speed 1/min:	
valve Volt:	12	+	Charge press. hPa:	
Shutoff		+	KSB/AFB	
electromagnet Volt:	12	+	valve Volt:	12
Overflow :	55.60139.00	1	Shutoff	
quantity cm3/10s:		1	electromagnet Volt:	12
4-5.75	(10:00:11)	Ĺ	Del. quantity cm3/:	
Delivery-quant. and	breakaway char :	\perp		(38.7043.30)
occitory quarter and	or caranay char	I	10005	(30.7043.30)
		Ι	Mech. shutoff:	
1nd speed 1/min:	8mn+	T	riech. Shatori.	
Charge air pressure		T	Electr. shutoff:	
point hPa:		T	Electr. Shutoir:	
KSB/AFB	300	T	1-4 1/	200
	13	Ť	1st speed 1/min:	
valve Volt:	12	†	Del. quantity cm3/:	0.003.00
Shutoff	43	+		(0.003.00)
electromagnet Volt:		+	Shutoff	
Del. quantity cm3/:	55.5056.50	+	electromagnet volt:	•••
	(53.0059.00)	+	KSB/AFB	
2nd speed 1/min:		+	valve Volt:	-
Charge press. hPa:	1000	+		
KSB/AFB		+	Idle delivery:	
valve Volt:	12	+		
Shutoff		+	1st speed 1/min:	290
electromagnet Volt:	12	+	KSB/AFB	
Del. quantity cm3/:	0.003.00	+	valve Volt:	12
	(0.003.00)	+	Shutoff	. •
5th speed 1/min:	2500	+	electromagnet Volt:	12
Charge press. hPa:		1	Del. quantity cm3/:	13.5017.50
KSB/AFB		1	10005.:	(11.5019.50)
valve Volt:	12	1	Dispersion cm3/:	3.0
Shutoff		1	1000s.:	
electromagnet Volt:	12	1	2nd speed 1/min:	
Del. quantity cm3/:	15 no .21 no	Ĺ	KSB/AFB	500
	(14.0022.00)	I	valve Volt:	12
8th speed 1/min:		\mathbf{I}	Shutoff	12
Charge press. hPa:		Ι	electromagnet Volt:	12
KSB/AFB	1300	I	Del. quantity cm3/:	
valve Volt:	12	T		(0.003.00)
Shutoff	12	T		
electromagnet Volt:	10	T		320
		T	KSB/AFB	43
Del. quantity cm3/:		†	valve Volt:	12
	(33.0045.00)	†	Shutoff	40
9th speed 1/min:		†	electromagnet Volt:	
Charge press. hPa:	1000	†	Del. quantity cm3/:	
KSB/AFB	12	+	1000S.:	(6.5013.50)
valve Volt:	12	+		
Shutoff	40	+	Load-dependent star	
electromagnet Volt:	72	+	Injqty.dif.measur	ement:
Del. quantity cm3/:		+		
	(48.7053.30)	+	1st speed 1/min:	1000
12th speed 1/min:		+	Charge press. hPa:	
Charge press. hPa:	1000	+	Injqty. cm3/ :	
-		1	difference 1000s	(20,00, 26,00)

KSB/AFB	+ KSB/AFB
valve Volt: 12	valve Volt: 12
Shutoff	Shutoff
electromagnet Volt: 12	
5th speed 1/min: 1000	+ electromagnet Volt: 12
	+ Del. quantity cm3/: 37.0039.00 L
Charge press. hPa: Z #	1000s.: (30.0046.00)
Injqty. cm3/: 2.003.00 difference 1000S.: (2.008.00)	
	+ Shutoff electromagnet:
KSB/AFB	†
valve Volt: 12	+ Cut-in
Shutoff	min voltage : 10.0
electromagnet Volt: 12	+ Rated voltage : 12.0
TD Amount different and	†
TD-travel dif.measurement:	+ Mounting and assembly dimensions:
correttore anticipo iniezione (SV):	†
1st speed 1/min: 1000	+ Designation
Charge press. hPa: Z +	+ K mm: -
TD-travel : 1.201.40	+ KF mm: 5.86.2
difference mm: (1.201.40)	+ MS mm: 1.11.5
KSB/AFB	+ SVS max. mm: 4.6
valve Volt: 12	+ Ya mm: 37.939.9
Shutoff	+ Yb mm: 39.244.8
electromagnet Volt: 12	4
4th speed 1/min: 1000	+ Remarks:
Charge press. hPa: Z #	Operate control lever after each
TD-travel : 0.501.10	manifold-pressure compensator pressure
difference mm: (0.501.10)	- change.
KSB/AFB	+
valve Volt: 12	<pre>+ * Correction at adjusting nut</pre>
Shutoff	
electromagnet Volt: 12	4
•	+ A = KSB adjustment point
Automatic starting fuel delivery:	+ B = KSB curve point
·	+
1st speed 1/min: 250	4
KSB/AFB	+
valve Volt: 12	+ Overflow restriction 0.55 mm - Part No.
Shutoff	+303
electromagnet Volt: 12	
Del. quantity cm3/: 53.0063.00	↓ Z = Absolute delivery
1000s.: (50.0066.00)	1
	+ Starting delivery check
2nd speed 1/min: 400	+ V = Speed-control lever in full-load
KSB/AFB	+ position
valve Volt: 12	1
Shutoff	Starting delivery check
electromagnet Volt: 12	+ L = Speed-control lever in idle
Del. quantity cm3/: 40.0050.00	+ position
1000s.: (40.0050.00)	1
	Ya = Distance between VE flange and
3rd speed 1/min: 100	Ta bistance between at I tally and
KSB/AFB	speed-control lever in idle
valve Volt: 12	1 speed contends tever in race
Shutoff	position
electromagnet Volt: 12	Į postetori
Del. quantity cm3/: 57.0059.00 V	Yb = Distance between VE flange and
10008.: (50.0066.00)	10 - Distance Detween VE Italige and
10000 (00.0000.00)	+ speed-control lever in rated speed
4th speed 1/min: 100	T specification rever in raced speed
750 Speed 1/100	position
	4 hosiriou

Measurement point = edge of control lever on distributor-head end BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : SOF : 07.93 Edition

replaces

Calibrating oil : ISO-4113

: VE4/10F2100R518 Injection pump Type number : 0 460 404 077

Customer Part-No. :

Customer-specific information Customer : IVECO-SOFIM

Engine : 8140.67.2200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically: 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

Pressure bar: 130.00...133.00

Test ini. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mn: 450

Start of delivery

Prestroke mm: 0.2

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000 Speed

Setting value mm: 0.90...1.10

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1000 Speed

Setting value bar: 4.70...5.30

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500

Del. quantity cm3/ 1000s.: 42.50...43.50

Shutoff

electromagnet Volt: 12 cm3/: 3.0 Dispersion 1000s.: (3.0)

Low-idle speed regulation

Speed " 1/min: 375

bel. quantity cm3/

1000s.: 12.00...16.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0)

Full-load speed regulation

1/min: 2300 Speed

Del. quantity cm3/

1000s.: 25.00...29.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 65.00...105.00

mind 1000s.: 65.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1000 hPa: 12 Charge press

Inj.-qty. cm3/

difference 1000s.: -15.0...-21.00#

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1000 1. Speed

TD-travel

difference mm: -0.4...-0.60#

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:	Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)
1st speed 1/min. 1900	5th speed 1/min: 2300
1st speed	Shutoff
mm: (5.707.10)	electromagnet Volt: 12 Del. quantity cm3/: 25.0029.00
electromagnet Volt: 12	10008.: (21.0033.00)
3rd speed 1/min: 1000	9th speed 1/min: 2100
TD travel mm: 0.901.10	Shutoff
mm: (0.401.60)	electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 42.0045.00
electromagnet Volt: 12	1000s.: (41.0046.00)
5th speed 1/min: 2100	12th speed 1/min: 1500
TD travel mm: 6.907.70 +	Shutoff
mm: (6.608.00)	electromagnet Volt: 12
electromagnet Volt: 12	Del. quyntity cm3/: 42.5043.50 1000s.: (41.0045.00)
6th speed 1/min: 1500	15th speed 1/min: 1000
TD travel mm: 4.204.80	Shutoff
mm: (3.805.20)	electromagnet Volt; 12
Shutoff	Del. quantity cm3/: 39.5042.50
electromagnet Volt: 12	1000s.: (38.5043.50)
+	20th speed 1/min: 600
Supply pump pressure characteristic:	Shutoff
+	electromagnet Volt: 12
1st speed 1/min: 2100 +	Del. quantity cm3/: 34.5038.50
Supply-pump +	1000s.: (33.5039.50)
pressure bar: 8.509.10 + Shutoff	seal about set.
electromagnet Volt: 12	Mech. shutoff:
2nd speed 1/min: 1000	Electr. shutoff:
Supply-pump -	Leectr. Shutorr.
pressure bar: 4.705.30	1st speed 1/min: 375
Shutoff	Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	1000s.: (0.003.00)
3rd speed 1/min: 600 +	Shutoff
Supply-pump +	electromagnet volt: -
pressure bar: 3.203.80	m (1
Shutoff -	Idle delivery:
electromagnet Volt: 12	1st speed 1/min. 775
Overlow quantity at overflow valve:	1st speed 1/min: 375 Shutoff
T	electromagnet Volt: 12
1st speed	Del. quantity cm3/: 12.0016.00
Shutoff	1000\$:: (9.0019.00)
electromagnes Volt: 12	Dispersion cm3/: 3.0
Overflow : 41.7083.40 +	1000s.: (3.0)
quantity cm3/10s: (26.7098.40)	2nd speed 1/min: 465
2nd speed 1/min: 2100 +	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 0.003.00
Overflow : 55.60139.00 +	1000s.: (0.003.00)
quantity cm3/10s: (40.60153.00)	1 and damped at the set of delice.
Delivery-quant. and breakaway char.:	Load-dependent start of delivery: Injqty.dif.measurement:
I	ing. quy.unl.measurement.
Ţ	1st speed 1/min: 1000
2nd speed 1/min: 2600 +	Charge press. hPa:
Shutoff	Injqty. cm3/ : -16.018.0
electromagnet Volt: 12	difference $1000s \cdot (-16.0 - 18.0)$

Shutoff Shutoff electromagnet: electromagnet Volt: 12 3rd speed 1/min: 1000 Cut-in Charge press. hPa: # min voltage : 10.0 cm3/: -15.0...-21.0 Inj. aty. Rated voltage : 12.0 difference 1000s.: (-14.0...-22.0) Shutoff Mounting and assembly dimensions: electromagnet Volt: 12 1/min: 1000 5th speed Designation Charge press. hPa: * K mm: cm3/: 0.00...2.00 Inj.-qty. KF mm: 5.8...6.2 difference 1000s.: (0.00...2.00) MS mm: 1.7...2.1 Shutoff SVS max. mm: electromagnet Volt: 12 Ya mm: 37.9...39.9 mm: 41.8...47.0 TD-travel dif.measurement: correttore anticipo iniezione (SV): Remarks: 1st speed 1/min: 1000 Charge press. hPa: # TD-travel : -0.40...-0.60 Overflow restriction 0.55 mm - Part No. difference mm: (-0.40...-0.66) Shutoff electromagnet Volt: 12 Ya = Distance between VE flange and 3rd speed 1/min: 1000 Charge press. hPa: * speed-control lever in idle TD-travel : -0.40...-1.40 difference mm: (-0.40...-1.40)position Shutoff electromagnet Volt: 12 Yb = Distance between VE flange and SP press.-dif.measurement: speed-control lever in rated speed pompa di mandata (FP): 1st speed 1/min: 1000 position Charge press. hPa: ' Supply pump-Measurement point = edge of control : -0.10...-0.30 pressure bar: (-0.10...-0.30) difference lever on distributor-head end Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1/min: 300 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 55.00...85.00 1000s.: (55.00...85.00) 1/min: 500 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 25.00...45.00 1000s.: (25.00...45.00) 4th speed 1/min: 100 Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 65.00...105.00

1000s.: (65.00...105.00)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : SOF Edition : 07.93

replaces : -

Calibrating oil : ISO-4113

Injection pump : VE4/10F2100R557 Type number : 0 460 404 079

Customer Part-No. :

Customer-specific information Customer : IVECO-SOFIM

Engine : 8140.67.2700

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp. °C

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening

Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery

Prestroke mm: 0.2

(from BDC): +0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000

Setting value mm: 0.90...1.10

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000

Setting value bar: 4.70...5.30

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500

Del. quantity cm3/

1000s.: 42.50...43.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0 1000s.: (3.0)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 12.00...16.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2300

Del. quantity cm3/

1000s.: 25.00...29.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 65.00...105.00

mind 1000s.: 65.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1000 Charge press hPa: 12

Inj.-qty. cm3/

difference 1000s.: -15.0...-21.00#

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1. Speed 1/min: 1000

TD-travel

difference mm: -0.4...-0.60#

Shutoff

electromagnet Volt: 12

Inspection—pump test specifications Test specifications in parentheses

electromagnet Volt:	12	difference 1000s.: (-16.018.0)
2nd speed 1/min: Shutoff	2600	+ Charge press. hPa: ' + Injqty. cm3/ : -16.018.0
		1st speed 1/min: 1000
Delivery-quant. and	breakaway char.:	Injqty.dif.measurement:
•		Load-dependent start of delivery:
Overflow : quantity cm3/10s:	55.60139.00	1000s.: (0.003.00)
electromagnet Volt:		+ Del. quantity cm3/: 0.003.00
Shutoff	2100	+ shutoff + electromagnet Volt: 12
quantity cm3/10s: 2nd speed 1/min:		+ 2nd speed 1/min: 465 + Shutoff
	41.7083.40	+ 1000s.: (3.0)
electromagnet Volt:	12	+ Dispersion cm3/: 3.0
1st speed 1/min: Shutoff	600	+ Del. quantity cm3/: 12.0016.00 + 1000s.: (9.0019.00)
•		+ electromagnet Volt: 12
Overlow quantity at	overflow valve:	+ 1st speed 1/min: 375 + Shutoff
electromagnet Volt:	12	+
Shutoff		Idle delivery:
Supply-pump bar:	3.203,80	electromagnet volt: ~
3rd speed 1/min:	600	+ Shutoff
electromagnet Volt:		+ 1000s.: (0.003.00)
Shutoff	T.10J.JU	+ Del. quantity cm3/: 0.003.00
Supply-pump bar:	4.705.30	1st speed 1/min: 375
2nd speed 1/min:	1000	+ Electr. shutoff:
electromagnet Volt:		+
Shutoff	0.307.10	+ Mech. shutoff:
Supply-pump pressure bar:	8.509.10	1000s.: (33.5039.50)
1st speed 1/min:	2100	+ Del. quantity cm3/: 34.5038.50
		+ electromagnet Volt: 12
Supply-pump pressur	e characteristic:	+ 20th speed 1/min: 600 + Shutoff
electromagnet Volt:	12	1000s.: (38.5043.50)
Shutoff		+ Del. quantity cm3/: 39.5042.50
	(3.805.20)	+ electromagnet Volt: 12
6th speed 1/min: TD travel mm:	4.204.80	+ 15th speed 1/min: 1000 + Shutoff
electromagnet Volt:		+ 1000s.: (41.0045.00)
Shutoff	_	+ Del. quyntity cm3/: 42.5043.50
	(6.603.00)	+ electromagnet Volt: 12
	6.907.70	+ 12th speed 1/min: 1500 + Shutoff
electromagnet Volt: 5th speed 1/min:		1000\$.: (41.0046.00)
Shutoff	42	+ Del. quantity cm3/: 42.0045.00
mn:	(0.401.60)	+ electromagnet Volt: 12
	0.901.10	+ Shutoff
electromagnet Volt: 3rd speed 1/min:		1000s.: (21.0033.00) + 9th speed 1/min: 2100
	(5.707.10)	bel. quantity cm3/: 25.0029.00
TD travel mm:	6.106.70	+ electromagnet Volt: 12
1st speed 1/min:		+ Shutoff
Timing-device chara	cteristic:	1000s.: (0.003.00) + 5th speed 1/min: 2300
riados a decidade abous		+ vel. quantity cms/: U.UUs.vu

Shutoff Shutoff electromagnet: electromagnet Volt: 12 3rd speed 1/min: 1000 Cut-in Charge press. hPa: # min voltage : 10.0 Inj.-qty. cm3/: -15.0...-21.0 difference 1000s.: (-14.0...-22.0) Rated voltage : 12.0 Shutoff Mounting and assembly dimensions: electromagnet Volt: 12 1/min: 1000 5th speed Designation Charge press. hPa: * mm: cm3/: 0.00...2.00 KF Inj.-aty. mm: 5.6...6.0 difference 1000s.: (0.00...2.00) MS mm: 1.7...1.9 SVS max. Shutoff mm: electromagnet Volt: 12 Ya mm: 37.9...39.9 mm: 41.8...47.0 Yb TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1000 Remarks: Charge press. hPa: # : -0.40...-0.60 TD-travel Overflow restriction 0.55 mm - Part No. difference mm: (-0.40...-0.60)Shutoff electromagnet Volt: 12 Ya = Distance between VE flange and 3rd speed 1/min: 1000 Charge press. hPa: * speed-control lever in idle TD-travel : -0.40...-1.40 difference mn: (-0.40...-1.40)position Shutoff electromagnet Volt: 12 Yb = Distance between VE flange and SP press.-dif.measurement: speed-control lever in rated speed pompa di mandata (FP): 1st speed 1/min: 1000 position Charge press. hPa: ' Supply pump-Measurement point = edge of control : -0.10...-0.30 bar: (-0.10...-0.30) pressure difference lever on distributor-head end Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 300 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 55.00...85.00 1000s.: (55.00...85.00) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 25.00...45.00 1000s.: (25.00...45.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 65.00...105.00 1000s.: (65.00...105.00)

BOSCH-INJ, -PUMP TEST SPECIFICATIONS Note inst. in remarks column Test scheet : VWW : 07.92 Edition replaces Calibrating oil : ISO-4113 Injection pump : VE6/10F2150L470 : 0 460 406 073 Type number Customer Part-No. : Customer-specific information Customer Engine : 075.2 (2.41.) TEST BENCH REQUIREMENTS Overflow restricti: 1 469 456 303 Calibrating oil return temp. with thermometer : 40.00...48.00 : 42.00...50.00 Electronically Inlet press., bar: 0.30...0.40 Calibrating nozzle-holder : 1 688 901 000 assembly Opening | Pressure bar: 147.00...150.00 Test inj. tubing : 1 680 750 017 Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length Start of delivery Prestroke mm: -(from BDC): -Injection pump setting values Test specifications in parentheses Timing-device travel 1/min: 1250 Charge press. hPa: 750 Setting value mm: 2.20...2.60

1/min: 1250 Speed Charge press hPa: 750 Setting value bar: 5.20...5.80 Shutoff electromagnet Volt: 12 Full-load del. with charge press.: Speed 1/min: 1250 Charge press. hPa: 750 Del. quantity cm3/ 1000s.: 41.50...42.50 Shutoff electromagnet Volt: 12 cm3/: 2.5 Dispersion 1000s.: (3.0) Full-load del. w/out charge press.: 1/min: 600 Speed Del. quantity cm3/ 1000s.: 24.50...25.50 Shutoff electromagnet Volt: 12 Low-idle speed regulation Speed 1/min: 375 Del. quantity cm3/ 1000s.: 7.00...9.00 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0) Full-load speed regulation 1/min: 2250 Speed hPa: 750 Charge press Del. quantity cm3/ 1000s.: 10.00...14.00 Shutoff electromagnet Volt: 12 Start: 1/min: 100 Speed Del. quantity cm3/: 35.00...65.00 -1000s.: 35.00 mind Shutoff electromagnet Volt: 12 Load-dependent start of delivery: Inj.—aty.dif.measurement: Speed 1/min: 1250 cm3/Inj.-qty. difference 1000s.: -1.00...-5.00 +

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Shutoff	1	Chishaff	
	12	Shutoff	40
electromagnet Volt:		electromagnet Volt:	12
TD-travel dif.measu		Overflow : quartity cm3/10s:	41.7083.40
correttore anticipo		quantity cm3/10s:	(27.8097.30)
1. Speed 1/min:	1250 +	2nd speed 1/min:	2000
TD-travel	+	Charge press. hPa:	750
difference mm:	-0.60.80+ 	Shutoff	
Shutoff	1	electromagnet Volt:	12
electromagnet Volt:	12	Overflow :	55 60 138 90
3 , 12, 2, 13, 13, 13, 13, 13, 13, 13, 13, 13, 13		quantity cm3/10s:	
Inspection-pump tes	t specifications	quarterey ens/103:	(41.10.1.172.70)
Test specifications		Delivery-quant. and	books out then
Test specifications	The parentneses	vectively qualit. and	Dieakaway Char
Timing-device chara	rteristic:		
Thirting device charac	cteristic.	And annual distance	700.
2nd speed 1/min:	1400 T	1nd speed 1/min:	
		Charge-air pressure	
Charge press hPa:		point hPa:	350
TD travel mm:		Shutoff	
	(3.705.10)	electromagnet Volt:	12
Shutoff	+	Del. quantity cm3/:	34.0035.00
electromagnet Volt:	12 1	1000s.:	(31.5037.50)
3rd speed 1/min:		2nd speed 1/min:	
Charge press hPa:		Charge press. hPa:	
TD travel mm:		Shutoff	1
norn.	(1.703.10)	electromagnet Volt:	12
Shutoff	T		
electromagnet Volt:	12 T	Del. quantity cm3/:	
			(0.006.00)
4th speed 1/min:		5th speed 1/min:	
Charge press hPa:	(20)	Charge press. hPa:	750
TD travel mm:	0.607.40	Shutoff	
	(0.301.70)	electromagnet Volt:	12
Shutoff	. †	Del. quantity cm3/:	10.0014.00
electromagnet Volt:	12 +		(8.0016.00)
	+	8th speed 1/min:	2175
Supply-pump pressure	e characteristic:	Charge press. hPa:	
	+	Shutoff	
1st speed 1/min:	600 +	electromagnet Volt:	12
Charge press. hPa:		Del. quantity cm3/:	
Supply-pump	1		(18.0030.00)
pressure bar:	3.303.90	9th speed 1/min:	
Shutoff	J.30J.70	Charge press. hPa:	
electromagnet Volt:	12 T	Shutoff	130
2nd speed 1/min:			43
		electromagnet Volt:	75 (0 75 (0
Charge press. hPa:	750 †	Del. quantity cm3/:	35.6035.60
Supply-pump	r 20		(33.4037.80)
	5.205.80	10th speed 1/min:	
Shutoff	+	Charge press. hPa:	750
electromagnet Volt:		Shutoff	
3rd speed 1/min:	2000 +	electromagnet Volt:	12
Charge press. hPa:	750	Del. quantity cm3/:	
Supply-pump	+		(35.4039.80)
	7.508.10	12th speed 1/min:	
Shutoff	1	Charge press. hPa:	
electromagnet Volt:	12 I	Shutoff	, , , ,
Trade, dimpire focts	Τ	electromagnet Volt:	12
Overlow quantity at	overflow valve:		
Over tow qualitity at	over flow valve.	Del. quyntity cm3/:	41.JU4Z.JU
1st speed 1/min.	600		(39.8044.20)
1st speed 1/min:		18th speed 1/min:	
Charge press. hPa:	- +	Charge press. hPa:	maps.

Shutoff +	- Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
Del. quantity cm3/: 24.5025.50	3rd speed 1/min: 1250
1000s.: (22.0028.00)	TD-travel : -1.11.50*
20th speed 1/min: 600	difference mm: (-0.801.80)
Charge press. hPa: 750	Shutoff
Shutoff	
1	electromagnet Volt: 12
electromagnet Volt: 12	
Del. quantity cm3/: 37.7040.70	SP pressdif.measurement:
1000s.: (36.2042.20)	pompa di mandata (FP):
+	1st speed 1/min: 1250
Mech. shutoff:	Supply pump-
4	pressure : -0.10.30'
Electr. shutoff: 1	pressure : -0.10.30' difference bar: (-0.100.30)
1	Shutoff
1st speed 1/min: 375	electromagnet Volt: 12
Del. quantity cm3/: 0.003.00	3rd speed 1/min: 1250
10008:: (0.003.00)	
Shutoff	Supply pump-
	pressure : -0.50.90*
electromagnet volt: -	difference bar: (-0.301.10)
†	Shutoff
Idle delivery:	electromagnet Volt: 12
+	4th speed 1/min: 1250
1st speed	•
Shutoff	Automatic starting fuel delivery:
electromagnet Volt: 12	
Del. quantity cm3/: 7.009.00	1st speed 1/min: 320
1000s.: (4.0012.00)	Shutoff
Dispersion cm3/: 2.0	
	electromagnet Volt: 12
1000\$.: (3.0)	Del. quantity cm3/: 35.0075.00
2nd speed 1/min: 500	1000s.: (35.0075.00)
Shutoff	
electromagnet Volt: 12	2nd speed 1/min: 520
Del. quantity cm3/: 0.004.00	Shutoff
1000s.: (0.004.00)	electromagnet Volt: 12
+	Del. quantity cm3/: 15.0035.00
Load-dependent start of delivery:	1000s.: (15.0035.60)
<pre>Injqty.dif.measurement:</pre>	
	4th speed 1/min: 100
1st speed 1/min: 1250	Shutoff
Injqty. cm3/ : -0.51.50'	
difference 1000s.: (-0.501.50)	electromagnet Volt: 12
	9el. quantity cm3/: 35.0065.00
Shutoff	10008.: (35.0065.00)
electromagnet Volt: 12	
3rd speed 1/min: 1250 +	Shutoff electromagnet:
Injqty. cm3/: -1.05.00+	
	· Cut-in
difference 1000s.: (1.007.00)	Cucini
Shutoff + 1000\$.: (1.007.00)	
Shutoff	min voltage : 10.0
Shutoff electromagnet Volt: 12	
Shutoff electromagnet Volt: 12 5th speed 1/min: 1250	min voltage : 10.0 Rated voltage : 12.0
Shutoff electromagnet Volt: 12 5th speed 1/min: 1250 Injqty. cm3/: 0.003.00 *	min voltage : 10.0
Shutoff electromagnet Volt: 12 5th speed 1/min: 1250 Injqty. cm3/: 0.003.00 * difference 1000s.: (0.003.00)	min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions:
Shutoff electromagnet Volt: 12 5th speed 1/min: 1250 Injqty. cm3/: 0.003.00 * difference 1000s.: (0.003.00) Shutoff	min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation
Shutoff electromagnet Volt: 12 5th speed 1/min: 1250 Injqty. cm3/: 0.003.00 * difference 1000s.: (0.003.00)	min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation K mm: 3.33.5
Shutoff electromagnet Volt: 12 5th speed 1/min: 1250 Injqty. cm3/: 0.003.00 * difference 1000s.: (0.003.00) Shutoff electromagnet Volt: 12	min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation K mm: 3.33.5 KF mm: 6.56.7
Shutoff electromagnet Volt: 12 5th speed 1/min: 1250 Injqty. cm3/: 0.003.00 * difference 1000s.: (0.003.00) Shutoff electromagnet Volt: 12 TD-travel dif.measurement:	min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation K mm: 3.33.5 KF mm: 6.56.7 MS mm: 1.11.5
Shutoff electromagnet Volt: 12 5th speed 1/min: 1250 Injqty. cm3/: 0.003.00 * difference 1000s.: (0.003.00) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV):	min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation K mm: 3.33.5 KF mm: 6.56.7 MS mm: 1.11.5 SVS max. mm: -
Shutoff electromagnet Volt: 12 5th speed 1/min: 1250 Injqty. cm3/: 0.003.00 * difference 1000s.: (0.003.00) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250	min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation K mm: 3.33.5 KF mm: 6.56.7 MS mm: 1.11.5 SVS max. mm: - Ya mm: 31.533.5
Shutoff electromagnet Volt: 12 5th speed 1/min: 1250 Injqty. cm3/: 0.003.00 * difference 1000s.: (0.003.00) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 TD-travel : -0.60.80+	min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation K mm: 3.33.5 KF mm: 6.56.7 MS mm: 1.11.5 SVS max. mm: - Ya mm: 31.533.5
Shutoff electromagnet Volt: 12 5th speed 1/min: 1250 Injqty. cm3/: 0.003.00 * difference 1000s.: (0.003.00) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250	min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation K mm: 3.33.5 KF mm: 6.56.7 MS mm: 1.11.5 SVS max. mm: 1.11.5 Ya mm: 31.533.5

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position

:

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

y y Fehlenden text übersetzen

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : VWW Edition : 07.93

replaces : -

Calibrating oil : ISO-4113

Injection pump : VE6/10F2150L398 Type number : 0 460 406 075

Customer Part-No. :

Customer-specific information

Customer : VW

Engine : 075.1 (2.4L)

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp. °C

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500

Setting value mm: 4.40...4.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500

Setting value bar: 6.00...6.60

Shutoff

electromagne: Voit: 12

Full-load del. with charge press.:

Speed 1/min: 1250

Del. quantity cm3/

1000s.: 30.00...31.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

10003.: 7.08...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Full-load speed regulation

Speed 1/min: 2325

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 35.00...65.00

mind 1000s.: 35.00

Shutoff

electromagnet Volt: 12

Load dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1500

Inj.-qty. cm3/

difference 1000s.: -8.00...-12.00#

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1500

TD-travel

difference mm: -0.6...-0.80#

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device chara	cteristic:	Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)
2nd speed 1/min: TD travel mm:	1700 - 5.105.90 -	5th speed 1/min: 2325 Shutoff
mn:	(4.806.20)	electromagnet Volt: 12
Shutoff	1	Del. quantity cm3/: 10.0014.00
electromagnet Volt:		1000s.: (8.0016.00)
3rd speed 1/min:	1500	8th speed 1/min: 2275
	4.404.80	Shutoff
	(3.905.30)	electromagnet Volt: 12
Shutoff	40	Del. quantity cm3/: 14.5024.50
electromagnet Volt:		1000s.: (13.5025.50)
4th speed 1/min:		9th speed 1/min: 2150
TD travel mm:	1.802.60	- Shutoff
mm:	(1.502.90)	- electromagnet Volt: 12
Shutoff		Del. quantity cm3/: 21.0023.00
electromagnet Volt:	12	10005.: (19.8024.20)
5th speed 1/min:	2150	10th speed 1/min: 1850
	6.207.00	
		Shutoff
	(5.907.30)	electromagnet Volt: 12
Shutoff	-	Del. quantity cm3/: 22.7025.30
electromagnet Volt:	12	1000s.: (21.0027.00)
		- 12th speed 1/min: 1250
Supply-pump pressure	e characteristic:	Shutoff
and the same in the same in		electromagnet Volt: 12
1st speed 1/min:	750	
	1) 🖯	Del. quyntity cm3/: 30.0031.00
Supply-pump	7 00 / /0	1000s.: (28.2032.70)
	3.804.40	20th speed 1/min: 750
Shutoff	-	Shutoff
electromagnet Volt:		- electromagnet Volt: 12
2nd speed 1/min:	1500 -	Del. quantity cm3/: 26.5029.50
Supply-pump	-	1000s.: (25.0031.00)
	6.006.60	
Shutoff		Mech. shutoff:
electromagnet Volt:	12	racii. Siucoii.
		Flores showerff.
	2100	Electr. shutoff:
Supply-pump		
	7.908.50	1st speed 1/min: 375
Shutoff		- Del. quantity cm3/: 0.003.00
electromagnet Volt:	12	1000s.: (0.003.00)
3		Shutoff
Overlow quantity at	overflow valve:	electromagnet volt: -
are to a quarter by ac	over row vacve.	e cecer anagrice voce.
1st speed 1/min:	750	Tallo do la vomus
Shutoff	730	Idle delivery:
	42	
electromagnet Volt:		1st speed 1/min: 375
	41.7083.40	- Shutoff
quantity cm3/10s:		electromagnet Volt: 12
2nd speed 1/min:	2150	Pol. quantity cm3/: 7.009.00
Shutoff		1000s.: (4.0012.00)
electromagnet Volt:	12	Dispersion cm3/: 2.0
Overflow :	55.60138.90	10008.: (3.0)
quantity cm3/10s:		
quarterly Cab/105:	\¬1.1U1J6.7U/	
Not disament and	handous about	- Shutoff
Delivery-quant. and	oreakaway char.:	electromagnet Volt: 12
	4	Del. quantity cm3/: 0.003.00
_		1000s.: (0.003.00)
2nd speed 1/min:	2500	
Shutoff	4	Load-dependent start of delivery:
electromagnet Volt:	12	Ini -aty dif mascurement:

1/min: 500 2nd speed 1st speed 1/min: 1500 Shutoff Charge press. hPa: 1 Irij.-qty. cm3/: -6.50...-8.50 difference 1000s.: (-6.50...-8.50) electromagnet Volt: 12 Del. quantity cm3/: 15.00...35.00 1000s.: (15.00...35.00) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1500 1/min: 100 4th speed Shutoff Charge press. hPa: # electromagnet Volt: 12 Del. quantity cm3/: 35.00...65.00 cm3/: -8.0...-12.00 Inj.-qty. difference 1000s.: (-6.0...-14.00) 1000s.: (35.00...65.00) Shutoff electromagnet Volt: 12 5th speed 1/min: 1500 Shutoff electromagnet: Charge press. hPa: * Cut-in cm3/: 0.00...3.00 Inj. gty. min voltage : 10.0 difference 1000s.: (0.00...3.00) Rated voltage : 12.0 Shutoff electromagnet Volt: 12 Mounting and assembly dimensions: TD-travel dif.measurement: Designation correttore anticipo injezione (SV): mm: 3.2...3.4 K 1st speed 1/min: 1500 KF mm: 6.3...6.7 mm: 1.3...1.7 mm: 31.5...33.5 mm: 51.2...63.4 Charge press. hPa: # MS : -0.60,...-0.80 TD-trayel Ya difference mm: (-0.60...-0.20) Yb Shutoff electromagnet Volt: 12 3rd speed 1/min: 1500 Remarks: Charge press. hPa: * : -1.10...-1.50 TD-travel Overflow restriction 0.55 mm - Part No. difference mm: (-0.80, ... -1.80)...303 Shutoff electromagnet Volt: 12 Ya = Distance between VE flange and SP press.—dif.measurement: speed-control lever in idle pompa di mandata (FP): 1st speed 1/min: 1500 position Charge press. hPa: Supply pump-Yb = Distance between VE flange and pressure : -0.10...-0.30 difference bar: (-0.20...-0.20) speed-control lever in rated speed Shutoff electromagnet Volt: 12 position 1/min: 1500 3rd speed Charge press. hPa: * Measurement point = edge of control Supply pump-: -0.50...-0.90 pressure lever on distributor-head end bar: (-0.30...-1.10) difference Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 300 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...75.00 1000s.: (35.00...75.00)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : FOR 2,5 Edition : 07.07.93 replaces : 16.02.91 Calibrating oil : ISO-4113

Injection pump : VE4/11F2000R415 Type number : 0 460 414 083

Customer Part-No. :

Customer—specific information Customer : FORD (1)=NLK

Engine : 2.5L DI(2) = OHNE NLK

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp. *C

with thermometer : 44.00...46.00 Electronically : 44.00...46.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 114

Opening

Pressure bar: 207.00...210.00

Perforated-plate

diameter mm: 0.4

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery block Piston stroke mm: 0.35

mm: 0.35 mm: 0.30...0.40

Outlet : B

Injection-pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 1250

Setting value mm: 4.20...4.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250

Setting value bar: 6.90..7.50(1)

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 25.80...24.20 F

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0 1000s.: (4.0)

Low-idle speed regulation

Speed 1/min: 425

Del. quantity cm3/

1000s.: 6.00...8.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (4.0)

Full-load speed regulation

Speed 1/min: 2200

Del. quantity cm3/

1000s.: 23.20...25.20

Shutoff

electromagne: Volt: 12 Dispersion cm3/: 3.0 1000s.: (4.0)

Start:

Speed 1/min: 100

Del. quantity cm3/: 45.00...85.00

mind 1000s.: 45.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2000 Charge press hPa: (1)

Charge press hPa: (1)
TD travel mm: 7.40...8.20

mm: (7.10...8.60)

electromagnet Volt: 12 2nd speed 1/min: 1250 Charge press hPa: (1)

	4.204.60	+	Shutoff
	(3.904.90)	+	electromagnet Volt: 12
Shutoff	40	+	Overflow : 97.30141.70
eleutromagnet Volt:		+	quantity cm3/10s: (82.30156.73)
3rd speed 1/min:		+	2nd speed 1/min: 1950
Charge press hPa:		+	Shutoff
	1.702.50	+	electromagnet Volt: 12
	(1.402.80)	+	Overflow : 115.30184.80
Shutoff		+	quantity cm3/10s: (100.30199.30)
electromagnet Volt:	12	+	
4th speed 1/min:	-	+	Delivery-quant. and breakaway char.:
Charge press hPa:		+	·
	7.508.30	+	
	(7.208.60)	+	1nd speed 1/min: 1950
Shutoff		+	Shutoff
electromagnet Volt:		+	electromagnet Volt: 12
5th speed 1/min:		+	Del. quantity cm3/: 36.0038.40 D
Charge press. hPa:	(2)	+	1 000 \$.: (34.7039.70) D
TD travel mm:	4.204.60	+	2nd speed 1/min: 2400
nen:	(3.904.90)	+	Shutoff
Shutoff		1	electromagnet Volt: 12
electromagnet Volt:	12	+	Del. quantity cm3/: 0.005.00
6th speed 1/min:		+	1000s.: -
Charge press. hPa:		1	5th speed 1/min: 2200
	2.092.80	. _	Shutoff
	(1.703.10)	1	electromagnet Volt: 12
Shutoff		1	Del. quantity cm3/: 23.2025.20
electromagnet Volt:	12	1	10005.: (19.2029.20)
	,	1	8th speed 1/min: 2100
Supply-pump pressure	e characteristic:	1	Shutoff
outport parts pressure	c character istre.	1	electromagnet Volt: 12
1st speed 1/min:	500	I	Del. quantity cm3/: 30.5036.50
Supply-pump	300	1	1000s.: (27.5039.50)
	(1) 5.25.8	Ι	9th speed 1/min: 1950
	(2) 4.45.0	Ι	Shutoff
Shutoif	(2) 4.4.13.0	I	electromagnet Volt: 12
electromagnet Volt:	12	Ι	Del. quantity cm3/: 36.0038.40
2nd speed 1/min:	1000	Ι	10005.: (34.7039.70)
Supply-pump	1555	Ι	10th speed 1/min: 1700
pressure bar:	(1) 6.47.0	Ι	Shutoff
	(2) 5.76.3	T	
Shutoff Shutoff	(2) 3.110.3	T	electromagnet Volt: 12 Del. quantity cm3/: 36.5038.90
electromagnet Volt:	12	T	1900s.: (35.2040.20)
3rd speed 1/min:		T	
Supply-pump	1230	T	
	(1) 6.97.5	T	Del. quantity cm3/: 32.2033.20 E 1000s.: (30.2035.20) E
	(2) 6.26.8	T	
Shutoff	(2) 6.26.6	†	12th speed 1/min: 500
electromagnet Volt:	10	Ť	Shutoff
		T	electromagnet Volt: 12
	2000	†	Del. quyntity cm3/: 25.8026.20 F
Supply-pump	(1) 8 (0.3	†	1000s.: (23.0029.00) F
	(1) 8.69.2	†	March to a fift
	(2) 7.88.4	†	Mech. shutoff:
Shutoff	12	†	The star shows the
electromagnet Volt:	14	†	Electr. shutoff:
Aconton minutation of	a conflactor to a	†	A.L
Overlow quantity at	overtiom valve:	†	1st speed 1/min: 425
4 man ann ann an 1999 1999	500	†	Del. quantity cm3/: 0.003.00
1st speed 1/min:	DIAL)	+	1000s (0.00 3.00)

Shutoff mm: 2.7...2.9 K KF electromagnet volt: ~ mm: K-OT MS mm: 1.8 Idle delivery: TLA-E mm: 2.5 mm: 42.8...45.8 Ya 1st speed 1/min: 425 Yb mm: 60.0...72.0 Shutoff electromagnet Volt: 12 Remarks: Del. quantity cm3/: 6.00...8.00 1000s.: (3.00...11.00) cm3/: 3.0 1000s.: (4.0) 1/min: 500 Dispersion 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: (1) 0.0...6.0 1000s.: (2) 2.0...10.0 Part-load del.at 3rd inj.-qty. terza fermo deila portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) mm: 20.0 Spacing 1/min: 1250 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 18.00...19.00 1**000**\$.: (16.00...21.00) Automatic starting fuel delivery: 1/min: 300 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...70.00 1000s.: (40.00...70.00) 2nd speed 1/min: 480 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 21.00...31.00 1000s.: (21.00...31.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...85.00 1000s.: (45.00...85.00) Shutoff electromagnet: Cut-in : 10.0 min voltage : 12.0 Rated voltage Mounting and assembly dimensions:

N23

Designation

Pump/engine assignment: Attach timing-device cover KDEP 1151. Plunger lift in blocking position = 0.30... 0.40 mm referenced to outlet "B".

Ya = Distance between VE flange and speed-control lever in idle position

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

F = Adjustment point for low full-load delivery
E = Fuel-delivery adjustment point in HBA range. (Correction by way of HBA adjusting screw).
D = Adjustment point for high full-load delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : MAN Edition : 07.93 replaces

Calibrating oil : ISO-4113

: VE6/11F1350R417-4 Injection pump : 0 460 416 074 Type number

Customer Part-No. :

Customer-specific information

Customer

Engine : D 0826 GF 04

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer: 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 109 assembly

Openina

bar: 207.00...210.00 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

mm: 0.61 Prestroke

(from BDC): +0.02(0.04)

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1100

Setting value mm: 2.00...2.40

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1100 Speed

Setting value bar: 5.90...6.50

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 1000

Del. quantity cm3/ 1000s.: 83.00...84.00

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.5)

Low-idle speed regulation

1/min: 300 Speed

Del. quantity cm3/

1000s.: 7.00...13.00

Shutoff

electromagne: Volt: 24 Del. quantity cm3/: 6.0 1000s.: (6.5)

Full-load speed regulation

1/min: 1410 Speed

Del. quantity cm3/

1000s.: 57.00...63.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed Del. quantity cm3/: -1000s.: 57.00 mind

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1200 2nd speed

TD travel mm: 2.80...3.60 mm: (2.50...3.90)

Shutoff

electromagnet Volt: 24 3rd speed

1/min: 1100 mm: 2.00...2.40 TD travel mm: (1.50...2,90)

Shutoff

electromagnet Volt: 24 1/min: 1000 4th speed

	0.801.60	+ Shutoff
	(0.501.90)	+ electromagnet Volt: 24
Shutoff		+ Del. quantity cm3/: 57.0063.00
electromagnet Volt:	24	† 1000s.: (55.5064.50)
5th speed 1/min:	1350	+ 9th speed 1/min: 1350
	3.704.50	+ Shutoff
	(3.704.50)	+ electromagnet Volt: 24
Shutoff	(3.104.30)	Del. quantity cm3/: 77.5080.50
electromagnet Volt:	2/.	
etectrollagrict vott.	C**	10008.: (76.0082.00)
Comply men management		12th speed 1/min: 1100
Supply-pump pressur	e characteristic:	+ Shutoff
A	450	+ electromagnet Volt: 24
1st speed 1/min:	600	+ Del. quyntity cm3/: 81.5082.50
Supply-pump		† 1000s.: (79.5084.50)
	2.803.40	† 15th speed 1/min: 850
Shutoff		+ Shutoff
electromagnet Volt:	24	+ electromagnet Volt: 24
2nd speed 1/min:		Del. quantity cm3/: 81.0085.00
Supply-pump		+ 1000s.: (79.5086.50)
pressure bar:	5.906.50	20th speed 1/min: 600
Shutoff	31700.00	+ Shutoff
electromagnet Volt:	2/.	
3rd speed 1/min:		+ electromagnet Volt: 24
	1330	pel. quantity cm3/: 57.0063.00
Supply-pump	7 40 0 00	† 1000s.: (56.0064.00)
	7.408.60	†
Shutoff		+ Mech. shutoff:
electromagnet Volt:	24	+ Mech. Abstellung:
		+
Overlow quantity at	overflow valve:	+ 1st speed 1/min: 1350
		+ Del. quantity cm3/: 0.003.00
1st speed 1/min:	600	10008.: (0.003.00)
Shutoff		+ Shutoff
electromagnet Volt:	24	+ electromagnet volt: 24
Overflow :		1 cecter diagnet vote. 24
quantity cm3/10s:	(26.70 08.70)	Electr. shutoff:
2nd speed 1/min:	1750	T Etecti. Silutori:
Shutoff	1330	1-1
	~.	1st speed 1/min: 300
electromagnet Volt:	24	+ Del. quantity cm3/: 0.003.00
Overflow :	55.60139.00	† 1000s.: (0.003.00)
quantity cm3/10s:	(40.60153.00)	+ Shutoff
		+ electromagnet volt: -
Delivery-quant. and	breakaway char.:	+
	•	+ Idle delivery:
		+
2nd speed 1/min:	1550	+ 1st speed 1/min: 300
Shutoff		+ Shutoff
electromagnet Volt:	24	electromagnet Volt: 24
Del. quantity cm3/:		Del. quantity cm3/: 7.0013.00
	(0.003.00)	10008.: (5.0015.00)
3rd speed 1/min:		Dispersion cm3/: 6.0
Shutoff	1500	
	2/.	1000\$.: (6.5)
electromagnet Volt:		2nd speed 1/min: 450
Del. quantity cm3/:	(0.0015.00 (0.0045.00)	+ Shutoff
	(0.0015.00)	+ electromagnet Volt: 24
4th speed 1/min:	1450	+ Del. quantity cm3/: 0.003.00
Shutoff	•	† 1000s.: (0.003.00)
electromagnet Volt:	24	+
Del. quantity cm3/:		+ Automatic starting fuel delivery:
	(15.0045.00)	+
5th speed 1/min:	1410	- 1st speed 1/min: 300
		•

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 65.00...125.00 1000s.: (65.00...125.00)

2nd speed 1/min: 480

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 40.00...70.00 1000s.: (40.00...70.00)

3rd speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 64.00...66.00 1000s.: (57.00...73.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0

Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

mm: -

KF mm: 5.3...5.5

MS mm: -

mm: 0.6 SVS max.

mm: 37.4...40.4 Ya Yb

mm: 40.2...45.8

Remarks:

: MAN 51.1110 3-7215

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Ya = Distance between VE flange and

speed-control lever in idle

position

Yb = Distance between VE flange and

speed-control lever in rated speed

position

Measurement point = edge of control

lever on distributor-head end

Overflow restriction 0.55 mm - Part No. ..303

N27